UNIVERSITY OF ALBERTA

ADOLESCENT SUICIDAL BEHAVIOR AND SUBSTANCE USE

BY

KIM Y. ADRIA

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN PARTIAL FULFILMENT OF THE MASTERS OF SCIENCE

DEPARTMENT OF FAMILY STUDIES

EDMONTON, ALBERTA

FALL 1990

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1333 So. Beverly Glen Blvd
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April 9, 1990

Dear Mrs Adria,

Your letter to me was forwarded from U.S.C. I am pleased you read my work and certainly you have permission to make use of our data and framework. I would be very pleased to be kept informed as you go along. It should be a most interesting thesis!

I have found that despite the flood of writing on suicide, the fundamentals we discussed and published still hold true. Currently other significant factors are drugs, alcohol, and an increase in Broken homes. A brief survey of Emergency Room admissions seemed little different from our findings at USC.

Again, good luck and happy research, and I'll be glad to help.

Sincerely yours,

Joseph D. Teicher, MD.

P.S. Mail addressed to the LosAngeles address reaches me more readily.

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ETHICS APPROVAL FORM

Date: February 1990

Name(s) of Principal Investigator(s): Dr. M. Blackman

Department: Psychiatry

Project Title: Investigation of Factors Associated in Adolescent Suicidal Behavior.

The Ethics Review Committee for Human Experimentation has reviewed the protocols involved in this project and has found them to be acceptable within the limitations of human experimentation.

Specific Comments:

Signed - Chairman of Ethics Review Committee

for the Faculty of Medicine
University of Alberta

This approval is valid for one year.

\ethics\approve

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Many thanks for your co-operation.

RM Blair

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Ethics Review Committee for Human Experimentation

enc.
/rms

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April 18, 1990

Kim Adria
1106 76th Avenue
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Dear Ms. Adria:

I am writing in response to your letter of March 26, 1990. You have my permission to use both the DAST-20 and the Alcohol Dependence Scale (Alcohol Use Questionnaire) for your masters thesis focusing on adolescent suicidal behaviour. I have sent several recent articles on both of these assessment instruments, which provide further information on their diagnostic validity.

Obviously, I will be quite interested in learning about the results from your research. Perhaps you can send me a copy of your thesis once it is completed.

With all good wishes.

Sincerely,

Harvey A. Skinner, Ph.D.
Professor

HAS/jk

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April 3, 1990

Kim Adria
11106 76 Avenue
Edmonton, Alberta
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Dear Ms. Adria:

Thank you for your letter of March 26, 1990 requesting permission to use the Suicide Probability Scale (SPS), which you are considering for your masters' research through the University of Alberta, Department of Family Studies, investigating factors pertaining to adolescent suicide attempts.

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Your interest in the SPS is appreciated. Due to the nature of your research, we are enclosing brochures for the Personal Experience Inventory (PEI) and for the Multiscore Depression Inventory (MDI), which we hope you will also find to be of interest.

Best wishes for success with your study--we look forward to receiving the results. If you have other inquiries, please do not hesitate to contact WPS.

Sincerely,

Susan Dunn Weinberg
Assistant to the President
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University of Pittsburgh
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April 6, 1990

Kim Adria
11106 76 Avenue
Edmonton, Alberta
CANADA
T6G 0J8

Dear Ms. Adria:

Thank you for your recent letter in which you requested information regarding the Children's Depression Inventory (CDI).

As per your request, enclosed is an article in which the CDI, its development, and psychometric properties are described. Also, enclosed are two copies of the CDI, instructions for its administration, a scoring template, and a reference list. Please note that the CDI is copyrighted. This letter gives you permission to reproduce it only for your purposes, as stated in your letter. In the case that other professionals are interested in obtaining the instrument, please ask them to write to me directly.

I would appreciate your keeping me posted on the progress of your work by forwarding any pertinent reprints or manuscripts. I hope that you'll find the above information useful. If you have any questions, please feel free to get in touch with me again.

Good luck with your thesis!

Sincerely yours,

Maria Kovacs, Ph.D.
Associate Professor of
Psychiatry

MK/bb

Enclosures: CDI (2), instructions for administration, scoring template, Psychopharmacology Bulletin Article, CDI references

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UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR: KIM Y. ADRIA

TITLE OF THESIS: ADOLESCENT SUICIDAL BEHAVIOR AND SUBSTANCE USE

DEGREE: MASTERS OF SCIENCE

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DATE: June 22 1990

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Dianne K Kieren

DIANNE K. KIEREN

MAURICE BLACKMAN

RONALD J. DYCK

Janet Fast

JANET FAST

DATE: June 22, 1990

DEDICATION

THIS THESIS IS DEDICATED TO MY HUSBAND ROBERT, FOR HIS LOVE, SUPPORT AND UNDERSTANDING THROUGHOUT THIS DEGREE, AND TO MY FAMILY FOR THEIR CONTINUED SUPPORT AND ENCOURAGEMENT.

ABSTRACT

The major purpose of this study was to assess depression, and adolescent and parental drug and alcohol use as possible distinguishing factors among one group of suicidal adolescents and two groups of nonsuicidal adolescents. A developmental model was utilized as a framework to explain adolescent suicide as a process and how the variables in this study fit into this process leading up to suicidal behaviors.

The sample consisted of 3 groups of adolescents: 21 adolescents admitted to hospital due to suicidal ideation or behavior; 19 adolescents undergoing psychiatric treatment; and a general control group of 21 adolescents. The groups were matched as closely as possible on age and gender variables. The self-report measures used included the Child Depression Inventory, The Suicide Probability Scale, the Drug Abuse Scale, and the Alcohol Dependence Scale. The Lethality of Attempt Rating Scale was completed by a physician.

Findings of this study indicated greater use and dependence on alcohol by suicidal adolescents than the general control group. Very few adolescents in any group reported drug use, which may be due to the young age and female overrepresentation of the sample. Results indicated that the depression and suicide probability scores obtained by psychiatric adolescents were not very different from

those of suicidal adolescents. Both groups reported high levels of depression and suicide probability, suggesting that the psychiatric group of adolescents may be very similar to the group of suicidal adolescents. These groups were not significantly different on the demographic variables.

Although the research findings suggest that the variables as specified in the developmental model are present, support for the proposed role of depression and alcohol and drug use as distinguishing factors was not obtained. To determine the nature of a stage-wise progression by adolescents to suicidal behavior, and the role of drugs and alcohol in this progression, longitudinal studies need to be conducted.

ACKNOWLEDGEMENTS

I wish to express my sincere appreciation to all members of my committee for providing me continual guidance and support throughout the completion of this research project. Dr. Dianne Kieren provided much needed direction, perserverance and encouragement for the completion of this thesis. Special thanks to Dr. Ronald J. Dyck who provided the inspiration for this degree, as well as providing continuing support and expertise for the duration of the research. Dr. Maurice Blackman provided encouragement, empathy, and the patients to conduct the study. Thanks to Dr. Janet Fast for joining the committee and providing helpful insights, as well, thanks to Dr. Fredrick Morrison, my initial supervisor for his help in the initial stages of this project.

Special thanks to George Stebelsky, Alberta Mental Health for his ever-willing help and support with the statistical analyses.

A special thank you to all the parents and adolescents who participated in this study, without whom this research could not have been completed.

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CHAPTER ONE

INTRODUCTION & STATEMENT OF THE PROBLEM

Adolescent suicide presents a serious problem to a whole range of people - parents, peers, clinicians, teachers and community educators and social scientists. In Canada, as well as the United States, adolescent suicide rates for the 15-24 year old age group have tripled (Dyck, Newman & Thompson, 1988; Solomon & Hellon, 1980). Suicide is now the second leading cause of death in the adolescent population (Maris, 1985). In 1988, Alberta had a total of 40 completed suicides in the 10-19 year old group. However, many adolescents engaging in suicidal behavior do not die, and estimates of the ratio of attempted to completed suicides range from 50:1 to 200:1 (Committee on Adolescence, 1980). Regardless of age, suicide is a powerful indicator of personal distress. Suicide attempts and successful completions often leave survivors asking why? What could I have done? How could it have been prevented? What were the clues which were missed?

It is indeed difficult to understand self destructive behavior within the context of the potentialities of youth. Suicide risk, detection and prevention is therefore of particular importance for this group. In order to avert suicide and suicidal behavior and to design appropriate educational, diagnostic or clinical interventions there is a

need for a better understanding of suicidal behavior by adolescents.

Adolescent suicidal behavior is a complicated process which may be influenced by individual, interpersonal and contextual factors. Much previous work has focused on identifying and examining precipitating factors. Generally, researchers have suggested that suicide or attempted suicide is related to a whole range of individual and interpersonal or family factors such as adolescent impulsiveness (Hawton, Cole, O'Grady & Osborn; Williams & Lyons, 1976), cognitive rigidity (Curan, 1987; Spirito, Overholser & Stark; 1989), poor problem solving skills (Spirito, Stark & Williams, 1986), family stress (Adam, Boukoms & Streiner, 1982; Williams & Lyons, 1976), poor parent-child relationships and family disorganization and conflict, especially that related to loss of a parent in death or divorce (McKenry, Tishler, & Kelley, 1982; Pettifor, Perry, Plowman & Pitcher, 1983) or mental illness of a family member (Pettifor, et al., 1983).

With respect to family factors however, Tishler and Kelley (1983), conclude, although "mounting evidence indicates a relationship between attempted suicide and disorganization of the nuclear family... the exact nature of these familial deficiencies has rarely been explicitly explored" (p. 267). Many of the factors found in families with a suicidal adolescent, are found in healthy, functioning families.

The majority of adolescents cope with the stress of life without engaging in suicidal behavior (Maris, 1985). According to Maris (1985)

> .....the overwhelming majority of young people cope with the strains of modern life without killing themselves. Those who do **not** have individual, personal, situational, and even biological (e.g., genetic, hormonal) contingencies which make them especially vulnerable to suicide. Thus we must also examine the particular individual and situational factors that make **some** young people's lives not viable.
>
> These more personal factors in young suicides might include use of alcohol and drugs, sexual permissiveness and sexual confusion, repeated depression, hopelessness (including chaos, confusion, disorientation) social isolation and failure of social adaptive techniques, anger, irritability, impulsivity having a gun and so on (p. 104).

It is nearly impossible to examine all of these proposed factors in a coherent manner. Thus, this study shall focus on examining the combination of a small number of individual and family factors which have been determined to play a potentially important role in distinguishing suicidal adolescents from other adolescents. These variables include adolescent depression, adolescent drug and alcohol use, and parental drug and alcohol values and use.

Depression, Substance Use and Suicidal Behavior

Depression has been identified as a key characteristic of suicidal adolescents (Kandel & Davies, 1982; Robbins & Alessi, 1985). Kandel (1982) reported in a longitudinal study of adolescent drug use that depression was an important predictor of drug use. Whether used as a means to

cope with psychological stress or for some other purpose, drugs may play some kind of role for a significant number of adolescents who attempt suicide.

Drug and alcohol use/abuse are increasingly used by adolescents to control moods and also as a method of coping. Drugs have particular adaptive or defensive functions that may temporarily reduce fear or anxiety (Kandel & Davies, 1982; McKenry, Tishler, & Kelley, 1983). According to Thorne and DeBlassie (1985), "the use of drugs among adolescents can be seen as an alternative to coping with problems" (p. 335). As adolescents attempt to cope with problems within their family, at school, or attempt to handle depressive or suicidal feelings, hopelessness, or low self esteem, drugs may be used either to cope with these problems or, alternatively, to escape from them. Research on adolescent drug use has found that adolescent substance abusers (n=89) were three times more likely to make a suicide attempt than normal, nonabusing peers (Berman & Schwartz, 1990), with suicide ideation occurring after the initiation of drug use. Thus, drug use may play an important role in the progression to suicidal behavior. Examination of individual drug use patterns by adolescents attempting to cope with depressive feelings may lead to a greater understanding of the occurrence of suicidal behavior.

Although researchers (Hawton, 1982; Hendin, Pollinger, & Ulman, 1981-1982; Tishler, McKenry, & Kelley, 1983; Thorne & DeBlassie, 1985) have examined adolescent drug and alcohol use to some degree, one other aspect of drug and alcohol use may be important in adolescent suicide, parental values with respect to adolescent drug or alcohol use and parental use as a means of modelling drug and alcohol use.

A major criticism of suicide research has been the lack of control or comparison groups (Pettifor et al., 1983). Many predictive or prevalent factors concluded to be present in the lives of suicidal adolescents have been based on studies with only a sample of suicidal adolescents (Hawton, O'Grady, Osborn, & Cole, 1982; Headlam, Goldsmith, Hanenson, & Rauh, 1979). Research conducted on only one group may find numerous factors present, however, conclusions cannot be drawn as to whether one group is different from another group of adolescents. Interview studies have looked at more than one population (Friedman, Corn, Hurt, Fibel, Schulick, & Swirsky, 1984; McKenry, Tishler, & Kelley, 1982; Williams & Lyons, 1976), including suicidal and nonsuicidal or depressed adolescents, however, the focus of these studies examined family interaction only, or other family factors, not individual factors of the adolescent.

The present research will respond to this criticism or limited view by examining three populations of adolescents: suicidal, nonsuicidal psychiatric, and normal adolescents.

Such a design will allow for greater determination of significant differences among the three groups on potential distinguishing factors such as personal characteristics including depression and substance use.

Purpose of the Study

The goal of this study is to examine the role of depression, individual and family drug and alcohol use as a possible distinguishing factor in predicting why some adolescents engage in suicidal behavior while others do not. As drugs and alcohol are often used by suicidal adolescents to combat depression, it is hypothesized that drug and alcohol use will be a likely differentiator. This research will attempt to answer the following questions with regard to adolescent suicidal behavior and substance use.

1. Is adolescent drug and/or alcohol use (amount and frequency) more prevalent among those adolescents who engage in self destructive behavior than among those who do not?
2. What is the relationship between perceived parental drug and/or alcohol use (amount and frequency) and self reported adolescent alcohol/drug use?
3. How is adolescent drug and/or alcohol use related to depression, and suicidal behavior?
4. Are there differences among the groups with respect to depression, suicidal behavior, alcohol and drug use, and perceived parental drug use?

5. What role does alcohol and drug abuse play in the decision to attempt suicide or its lethality?

Definitions

For the purposes of this thesis, the following terms will be used.

Completed Suicide: All deaths in which a willful, self-inflicted life threatening act has resulted in death (Peck, 1982).

Suicide Attempt: A situation in which a person has performed an actual or seemingly life threatening behavior with the intent of jeopardizing his or her life or to give the appearance of such an intent, but which has not resulted in death (Peck, 1982).

Deliberate Self Poisoning: "The deliberate ingestion of more than the prescribed amount of medicinal substances, or ingestion of substances never intended for human consumption, irrespective of whether harm was intended" (Hawton, 1986, p. 56).

Deliberate Self Injury: "Any intentional self inflicted injury, irrespective of the apparent purpose of the act" (Hawton, 1986, p. 56).

Suicidal Ideation: Behaviors and/or thoughts that are concerned with, or move in the direction of a possible threat to the individual's life, but in which the potentially lethal act has not actually been performed (Peck, 1982).

Intent: The seriousness or intensity of the wish to terminate life (Peck, 1982).

Lethality: Lethality is based on the medical or physical danger to life however, the circumstances surrounding the attempt, (including place of the attempt, and people present or expected) needs to be accounted for in determining lethality (Smith, Conroy & Ehler, 1984).

Depression: "A specific affective behavior pattern where there is impairment of the individual's ability to function effectively in his or her environment and which persists for some time" (Birelson, 1981, p. 74).

Adolescent: For the purpose of this thesis, adolescent will refer to a teenager aged 12 to 17.

Summary

This thesis will address the issue of suicidal behavior by adolescents, examining specifically the degree, frequency and types of drug and alcohol usage by adolescents in general; drug/alcohol use as it relates to suicidal behavior; and drug/alcohol use in relation to the severity of suicide attempt behavior. In this study, suicidal adolescents will be compared with both psychiatric, nonsuicidal adolescents, and an adolescent general control group. An overview of the research to date will be presented to indicate the rationale for this study. A

developmental perspective has been used to examine the relationships between the variables so that these research findings can be better understood, and to develop a focus for further research.

CHAPTER TWO

CONCEPTUAL FRAMEWORK

All research is conducted within a particular conceptual orientation, theory, or framework. Such a framework identifies the key variables which are proposed to explain the phenomena, and the relationships between them. In addition, the framework details the assumptions underlying those relationships. The purpose of this chapter is twofold: 1) to review key theories of adolescent suicide in order to provide a theoretical context for the proposed conceptual model, and 2) to describe in detail the specific conceptual framework which has been used to direct this research.

A Brief Review of Theories of Suicide

Many theories of suicide have been put forth as explanations for suicide or suicidal behavior. These theories are usually characterized by the nature of the key variables or explanatory factors contained in the theory. Diekstra and Moritz (1987), specified three basic categories of explanatory factors that have been used to explain suicidal behavior: biological, psychological and sociological. Most theories are based upon one key factor, or a combination of these factors.

Biological Theories

Biological theories of suicide explain suicidal behavior as a result of the individual's biological structures or processes. Such structures or processes include bodily illnesses and disorders, as well as biochemical or metabolic disorders that predispose a person to depression, and physiological conditions. Proponents of a biological explanations of suicide are Reich, Rice, & Mullaney (1986). While such theories have an apparent appeal, they have been criticized as being too narrow. Critics suggest that biological reasons provide only a partial explanation for suicide and must be combined with an explanation of other factors to provide a complete picture (Hendin, 1987; Lester, 1987).

Psychological Theories

Psychological theories take a different focus in that a basic assumption is that intrapsychic factors predispose an individual to suicidal behavior. Freud (1958), for example, discussed suicide in relation to his conceptualization of man's instincts, one of which is thanatos, the death instinct. To him, suicide was seen as hostility directed inward, as murder in the 180th degree.

Shneidman provides another example of a psychological theory of suicide. In 1976, Shneidman identified four psychological features for suicide to occur: 1) acute perturbation where there is a heightened state of upset in

an individual's life; 2) inimicality, where there is an increase in self-hate, self-blame, shame, guilt, and behaviors which are not in the individual's best interests; 3) tunnel vision or constriction, where the individual is unable to generate or see viable options; and 4) the idea of cessation where the individual comes to the conclusion that it is possible to end the pain. Shneidman concluded that suicide is not a movement toward death, rather, it is a flight from intolerable pain.

Another psychological theory has been developed by Lester (1987) whereby suicide is viewed as a learned behavior from "those forces in the environment that shape the suicidal person and precipitate the suicidal action" (p. 7). According to Lester, suicidal behavior is learned through operant conditioning, and such behavior is reinforced by others. Lester concludes that suicide is a result of a failure by society to socialize the suicidal person according to cultural norms, in particular with regards to choosing life over death.

Sociological Theories

The sociological perspective generally focuses on external factors, including environmental and social forces, as key factors in predicting or explaining a suicide or suicide attempt. Durkheim (1951) was the first major proponent of the sociological perspective to suicide. He created four types of suicidal behavior relating to the

degree of involvement which an individual has with society, with the continuum ranging from too much involvement to too little. The first category was altruistic suicide whereby suicide was established as normative behavior in certain situations of a society, such as Hari-kari in the Japanese culture. In such societies, suicide was seen as an honorable act and to continue to live under certain conditions would be unacceptable. A second type, egoistic suicide was where the individual's relationship to the community was insufficient or nonexistent, therefore societal demands to continue living were not apparent to the individual. The third type, where an individual's relationship with society suddenly became disrupted or shattered, such as a loss of employment, was termed anomic suicide. The term was used to describe the sudden feeling of being alone and estranged from society. A fourth type, fatalistic suicide, was precipitated by excessive regulation by society, where the individual is trapped, and suicide became the only way out.

Psychosocial Theories

Other theorists have combined psychological and sociological variables, creating a psychosocial theory of suicide (Diekstra, 1985; Hendin, 1987). This combination allows for many factors to be present. No variables are looked at in isolation, rather, each one becomes part of the context of the biography of a suicidal adolescent.

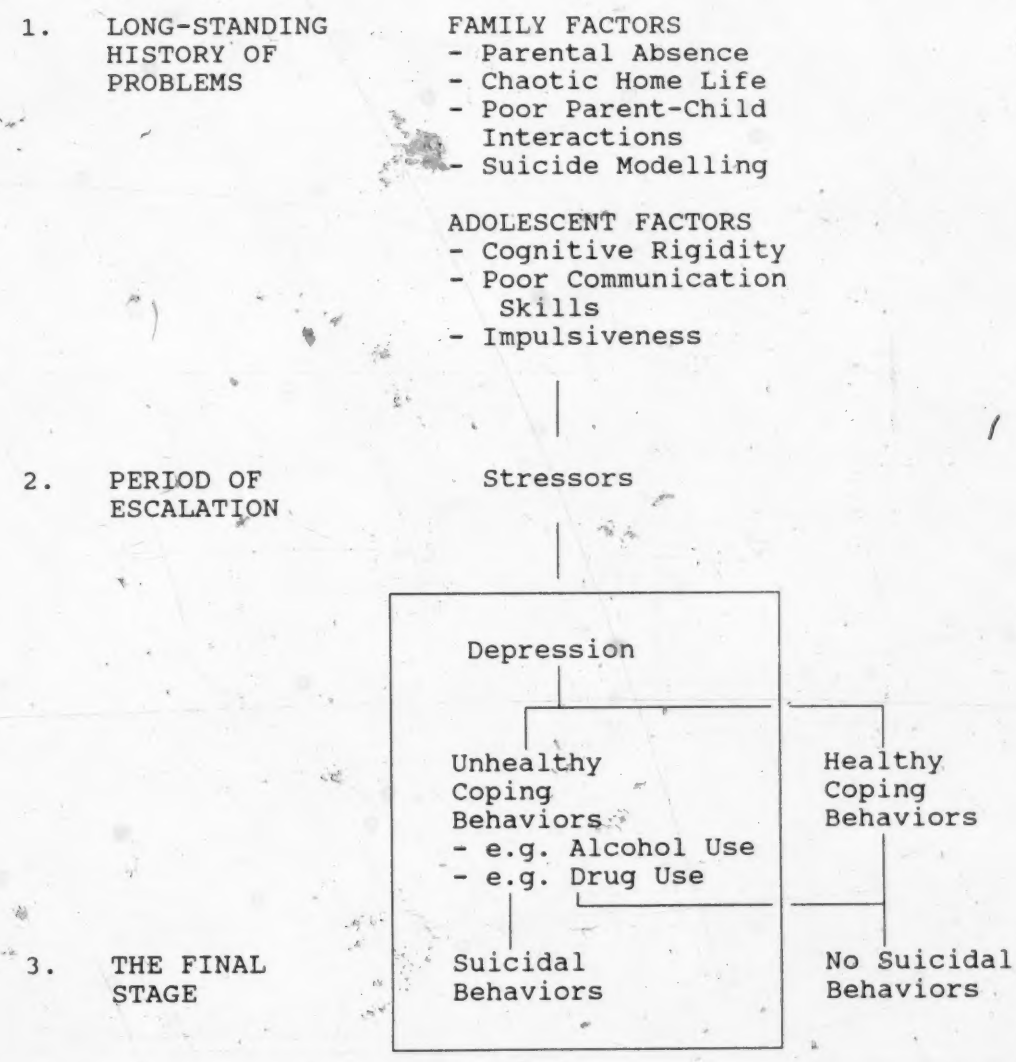
According to Hendin (1987), "A psychosocial perspective permits a vision of the personal meanings of life and death for young people in the context of their particular culture or subculture" (p. 163).

The Conceptual Approach

The theoretical perspective for this thesis includes sociological and psychological variables; adolescent drug and alcohol use, depression, and parental drug use values and use. It is designed within a developmental perspective comprised of certain assumptions. The key assumptions of this developmental perspective include: 1) Suicidal behavior is the culmination of a stage-like process; 2) The process is multidimensional and difficult; 3) At the time of the suicide attempt, prior as well as present events shaped or influenced the response; 4) The developmental characteristics of the adolescent and his or her culture are critical aspects in the process; and 5) The entire process leading up to suicidal behavior is complicated and not often captured within a single research study. While the complete model which has been derived from these assumptions represents a longitudinal process, the present research focuses only on a portion of the model. Since this is a cross-sectional study, the full developmental model cannot be explored. Only the boxed area as in Figure 1 will be addressed in this study.

Figure 1
Developmental Model
For Progression to Suicidal Behavior

(based on Teicher & Jacobs, 1966)



Teicher and Jacob (1986) provided the basis for Figure 1. They suggested that an adolescent progresses in stages to suicide. Thus, suicide should not be viewed as an isolated event. They stated that "precipitating causes can only be meaningfully calculated within the context of the individual's total biography" (p. 1257). The precipitating factors of interest to them were adolescent developmental change, family characteristics and escalation of stressors. Their conclusion was that suicide is seen to be the 'only solution' after a progression through three stages. These stages include:

1. Long-Standing History of Problems
2. Period of Escalation
3. The Final Stage

Several features of their stage-wise process are noteworthy. First, their developmental framework includes sociological, and psychological factors. Second, they propose that suicide has been considered by the adolescent as an alternative to chronic problems for some time, and third, a suicide attempt cannot be dismissed solely as attention seeking or a temporary upset. Each attempt must be taken seriously.

The first stage of the model encompasses both adolescent and family characteristics which are prevalent in the lives of suicidal adolescents. As discussed in the literature review, research on family demographics has found

that many of the suicidal adolescents come from homes reflecting marital instability (separation, divorce, and remarriage), loss of a parent through death, family disorganization, conflict, disturbed communication patterns, and drug and/or alcohol abuse (Pettifor, et al., 1983; Tishler, McKenry, & Morgan, 1982; Williams & Lyons, 1976). The effects of these long standing problems within the family may create a sense of a 'pile-up' of unresolved situations for the adolescent. According to Kerfoot, "disturbed family functioning and the stress that disordered interaction produces has long been associated with behavioral and emotional difficulties in children and adolescents and commonly the problem is one of continuing conflict with a parent usually presenting a disciplinary crisis" (1980, p. 339-340). The cumulative effects of the situation may prove difficult for an adolescent to cope with, particularly if problems have been on-going for many years.

The individual or personal characteristics of the adolescent also play a major role in how an adolescent reacts or responds to a difficult situation. As stated in the literature review, many of these adolescents are ill equipped to respond to problems, as they are unable to generate constructive methods of coping, are often cognitively rigid in their responses, and are not able to communicate effectively in their response. Some of the

destructive responses may in fact be learned behaviors, which serve to perpetuate or escalate the situation, however this cannot fully account for the adolescent's behavior.

Teicher and Jacobs feel that the period of escalation occurs with the onset of adolescence, and the added stresses that can occur with developmental changes. Erikson (1950), developed eight life stages of development, with the central crisis for the period of adolescence being identity versus role confusion whereby the adolescent strives to achieve a sense of personal identity in the midst of role diffusion, confusion and experimentation. The development and stability of the family plays an important role for the adolescent. Although adolescence is a period of striving for independence, with the rejection of previous dependence on the family, there is still a need for family back up and support when developmental tasks overwhelm the adolescent (Kerfoot, 1980). A disorganized or conflicted family atmosphere does not provide the necessary support for the adolescent during this time, and often serves to exacerbate the situation for the adolescent.

During the period of escalation, the adolescent not only becomes overwhelmed by the stresses incurred previously, but also experiences added stressors created by developmental changes. The lack of effective coping mechanisms coupled with cognitive rigidity, an inability to generate alternatives and poor communication skills, do not

allow the adolescent to overcome the stress. As problems increase for the adolescent, a sense of hopelessness about the future may develop due to the heightened awareness of lack of change or the inability to make things change. At this point, depression, which may have been present for some time, manifests itself in more obvious forms. However, adolescent depression may not be recognized by a disorganized family. The lack of recognition, or acceptance of depression by family members or significant others only serves to increase an adolescent's feeling of worthlessness, negative self worth and lack of hope for change for the future.

As depression continues, an adolescent may endeavor to overcome these feelings. As effective, healthy coping behaviors have not been learned, alcohol and/or drug use may take on a self medicating function either to cope with the problems or to flee from them. According to Diekstra and Moritz (1987), in "early adolescence (11-15), usually for the first time, certain problematic problem-solving strategies are acquired, like alcohol and drug abuse, delinquent behavior and also suicidal behavior" (p. 19). Although drugs and/or alcohol may initially appear to resolve or alleviate the adolescent's problems, the physiological and psychological effects of drugs only serve to increase the sense of despair and depression, and may then add to the existing problems.

The final stage occurs in which there has been no resolution of the problems in the previous two stages, and the adolescent experiences a "chain-reaction dissolution of any meaningful social relationships" (Teicher & Jacobs, 1966, p. 1255). The adolescent has been unable to effectively communicate his or her inability to overcome depression and other family and individual problems. As other methods of coping, including drugs and/or alcohol, do not improve the situation, the adolescent determines there is no hope, and suicidal behavior becomes a viable option to the adolescent as a way out of an impossible situation. The inherent physiological effects of drugs can decrease an adolescent's inhibitions. In this case, suicide becomes an alternative, when it might not otherwise be. Drugs may also increase the adolescent's ability to harm his or herself. Finally, impulsivity and prior exposure to suicidal behavior can greatly affect an adolescent's response to the stressful situation.

Within this developmental perspective of suicide, drug and/or alcohol use is viewed as a precipitating factor which may be present from stage one, and which may culminate in the final stage with a suicide attempt. During the first stage, drug/alcohol use by family members may model ineffective coping behavior, and may also serve to compound other problems which may be occurring within the family. With the onset of adolescence, the adolescent may begin to

use drugs and/or alcohol in an attempt to cope with their own problems, and possible depressive feelings. The presence of drugs or alcohol at the time of a suicide attempt is a probable outcome due to the adolescent's history of drug/alcohol use. Thus, drugs and/or alcohol use by depressed adolescents is hypothesized to be a major factor which may distinguish among groups of adolescents who have or have not attempted suicide.

CHAPTER THREE

LITERATURE REVIEW

The following literature review contains a discussion of the literature associated with adolescent depression, adolescent drug and alcohol use and suicidal behavior. However, consistent with the stage-wise model proposed in chapter two, a brief review of the literature on family and individual factors that influence or are related to adolescent suicide will be presented to provide a developmental context for the current study. Family characteristics, including parental absence from the home, parent child interactions, and parental modelling, including suicide, will be examined. As well, adolescent characteristics, including communication and problem solving skills, and impulsiveness will be discussed. A review of literature on adolescent depression and drug and alcohol use will then be presented.

Familial Characteristics

Two main familial factors or characteristics have been associated with adolescent suicide. They are parental absence from the home, and the quality of parent-child interactions. A third factor, suicide modelling by a parent or significant other will also be discussed.

Parental Absence and Suicide

The absence of a parent has been found in research to

be highly correlated with suicidal behavior (Kerfoot, 1980; Pettifor, et al., 1983). Pettifor et al. found that 72 percent of the young adults in their study of 40 mental health clients that had committed suicide had one or both parents absent from the home due to death, separation, or divorce, and that 56 percent of the cases had a parent married more than once. In a review of the literature, Kerfoot (1980) also consistently found one natural parent was permanently absent from the home of suicidal adolescents. However, Goldney (1981), in comparing the relative rate of broken homes of suicide attempters with adolescents that develop psychiatric problems, found no differences between the two groups. He concluded that "the possibility that the association between parental loss and subsequent attempted suicide may simply be related to an association between parental loss and depression" (p. 42).

It has been suggested that the distinction between suicide attempters and adolescents with psychiatric problems should be made because the suicide attempters more often suffered early loss of one or both parents (Cohen-Sandler, Berman, & King, 1982; Hawton, 1986). Dorpat, Jackson, & Ripley, (1965) studying 114 completed suicides and 121 attempted suicides concluded that the inability to come to terms with a parental death, led to the inability to sustain object loss later in life.

Jacobs and Teicher (1967), contrasting 50 suicidal adolescents with 32 nonsuicidal adolescents with respect to incidence of broken homes found the control group to have had a stable environment in the previous five years, while the suicidal adolescents did not. They determined it was not the loss of a love object that specifically predisposed an adolescent to later suicidal behavior. Rather, the loss became one of many other losses in the adolescent's life. An unstable family background, with an insecure environment can serve to heighten feelings of pile up of stressors as well as loss, particularly intimacy, spontaneity and closeness.

Adam, Boukoms and Streiner (1982), in comparing 90 suicidal to 102 nonsuicidal persons for the incidence of parental loss and family stability concluded that the differentiating factor of history of loss between attempted suicides and the controls was the "inability of the families of suicide attempters to respond constructively to the crisis of loss and the task of family reorganization over the long term" (p. 1085). They also found that the majority of adolescents attempting suicide had an unstable home with inconsistent parental care, and possible material hardship or a chaotic family environment characterized by gross deprivation of parental care, prolonged separations, and lack of emotional commitment, even when both parents were present.

Regardless of inconsistencies and problems with research methodology, including lack of a control group, small sample sizes, and use of non-standardized scales, there appears to be some agreement among the researchers that suicidal adolescents have grown up in an unstable family environment. The instability was not believed to be due solely to the lack of a parent. Rather, the family's inability to cope with the loss appears to be the important factor in the adolescent's life. The loss of a parent, it seems, becomes one of many losses for the adolescent, while, the family's response to that loss failed to model constructive coping skills for the adolescent to learn to deal effectively with future problems.

Parent-Child Interaction

Interaction between parent(s) and suicidal adolescents has been found to be extremely tenuous. Teicher and Jacobs (1966), in comparing 50 adolescents who attempted suicide and 50 nonsuicidal adolescents found that 69 percent of the suicidal adolescents reported problems with their parents occurring in the last five years, including severe communication problems, physical violence, and discipline problems. Hawton, O'Grady, Osborn & Cole (1982) found that 76 percent of suicidal adolescents stated they had problems with their parents. Tishler, McKenry and Morgan (1981) found that problems with parents were the reasons cited as the precipitant for the suicide attempt by 52 percent of

their sample. Tishler et al. (1981) suggested that the "parental problems were related to many of these other social problems cited as precipitants for the suicide attempt; that is, an unstable family environment could easily lead to problems with peers, school, and members of the opposite sex" (p. 90). However, this study did not include a control group. Therefore, it is unknown whether other adolescents have similar ratios of problems with their parents, school or girl/boy friends.

Disturbed communication and coping patterns have also been witnessed in families with a suicidal adolescent (Kerfoot, 1980; Pettifor et al., 1983; Williams & Lyons, 1976). Suicide, or suicidal behavior is a form of communication but such a desperate act would suggest that present communication patterns are not effective. Williams and Lyons (1976), in a comparison of six families with a suicidal adolescent to six families where the adolescent was not suicidal, found that communication in families with a suicidal adolescent was neither clear nor effective in terms of content and interpersonal interaction. They concluded that such poor communication was indicative of disturbance in family patterns as compared to families without a suicidal adolescent. Such studies must be replicated with a larger sample in order to determine the significance of the observation. Additionally, this research was conducted with intact families. It has been noted that, many suicidal

adolescents do not come from intact families and, accordingly, this factor must be controlled before conclusive results can be drawn. Hawton, O'Grady, Osborn, & Cole (1982), in their study of 50 adolescents that deliberately self poisoned themselves, also reported communication problems, with 89 percent of the adolescents considering themselves unable to discuss problems with their father and 48 percent unable to discuss problems with their mother.

Wright (1985) studying 207 high school seniors and 901 college students found that those who reported having suicidal thoughts were also significantly more likely to report family stress. This included conflict between parents, a poor relationship with their father, at least one parent who was angry, and at least one parent who was depressed most of the time. However, it is difficult to determine if this study utilized standardized tests, therefore the results must be viewed with caution.

Tishler and McKenry (1982), comparing 46 suicidal adolescents to 46 nonsuicidal adolescents cite evidence for intergenerational transfers of self destructive behaviors and coping mechanisms from parent to child. They found fathers of suicidal adolescents to be significantly more depressed and to have a lower self esteem, while mothers were significantly more anxious, experienced greater suicidal ideation, and consumed significantly more alcohol

than mothers of nonattempters. These factors could lead to an unfavorable coping skills model with which an adolescent could identify.

Poor or inadequate communication coupled with a poor parent child relationship only serves to increase the stress and disorganization which may already be present in the family. Not only does poor interaction and a poor relationship serve to isolate family members, communication between family members, which often is inadequate, does not provide a healthy learning environment for a child. The adolescent may feel lost in the very environment that is supposed to protect and nurture.

Suicidal Modelling

Finally, the probability of a suicidal act occurring is dependent on the responses to a crises that the adolescent has learned (directly or indirectly) and seemed to be successful. Diekstra (1985) concluded that "the best predictor of future suicidal behavior appears to be a learning history of similar behavior (previous suicidal behavior by self or models) as response to problems" (p. 37). If such behavior has been effective or is anticipated to be effective in reaching a goal, it will be seen as an acceptable form of action for the adolescent. Research findings indicate that up to one half of the cases of adolescents exhibiting suicidal behavior have had contact with others, particularly family members, who have attempted

or committed suicide (Pettifor et al., 1982; Teicher & Jacobs, 1966; Kerfoot, 1980). Teicher and Jacobs concluded that:

> A suicide attempt by a parent or a 'significant other' serves to lessen for the adolescent the social restraints against suicide. A parent's suicide attempt, serves to legitimate the adolescent's attempt, to wit, 'if they can, I can too'.
>
> Also it serves as a model and offers a possible solution to one's problem, a solution the parent attempted. In this case the parent is seen as the model in which the adolescent is expected to pattern his behavior (p. 1257).

Although an unstable home life, characterized with poor interaction, lack of communication skills, and poor modelling of coping skills are prevalent in many families in which there is a suicidal adolescent, these factors are not sufficient precipitating factors for the suicidal behavior. The individual characteristics of suicidal adolescents also need to be examined to understand their responses to a stressful situation.

Adolescent Characteristics and Suicide

Research has found that adolescents who exhibit suicidal behaviors have certain characteristics that reduce their ability to cope effectively with events or situations. These factors include the lack of effective communication skills, the presence of cognitive rigidity, and impulsive actions in response to difficult situations (Cantor, 1976;

Neuringer, 1964; Orbach, Rosenheim & Hary, 1987; Patsiokas, Clumb & Luscomb, 1979; Williams & Lyons, 1976).

Poor Communication and Suicidal Behavior

Suicidal adolescents have been found to be ineffective communicators (Cantor, 1976; Fawcett, Leff, & Bunney, 1969; & Hawton, Osborn, O'Grady, & Cole, 1982). Fawcett, Leff & Bunney (1969), reported that "suicidal adolescents frequently exhibit communication patterns characterized by a chronic lack of involvement in social interaction and an inability to express needs in a manner which leads to their gratification" (p. 269). Hawton, Osborn, O'Grady, and Cole (1982) studied adolescent motivations for suicidal behavior and found that adolescents attempted suicide as a means of gaining relief from a stressful state of mind or situation, and as a way of showing other people how desperate they were feeling. This is an indication of severe inability to communicate.

Cantor (1976) studying 120 females who varied in their expression of suicidal thought and behaviors found that although "the attempters stated a clear preference for help from others, at the same time they showed a striking inability to ask for this help" (p. 326). She also found a high degree of conflict between the suicidal adolescent and her parent(s), which may be a factor in the inability to ask for help.

A suicide attempt is often labelled a 'cry for help' yet, if a family is characterized by disturbed communication patterns, and ineffective coping skills, it would be very difficult to develop communication skills or to communicate effectively with the family. Patsiokas, Clum, and Luscomb (1979), concluded that

> young suicide attempters do not rely on their inner cognitions when coping with their problems. Their functioning is highly dependent on a stable environment; when this stability breaks down in a time of acute stress, a suicide attempt may become a feasible coping behavior, since their problem solving abilities are inadequate (p. 483).

Cognitive Rigidity and Suicide

Suicidal adolescents have been found to be very cognitively rigid and therefore unable to generate healthy alternatives or solutions to problems (Curan, 1987; Neuringer, 1964; Spirito, Overholser & Stark, 1989). Neuringer (1964) found that suicide attempters were more cognitively rigid than nonsuicidal groups. Patsiokas, Clumb & Luscomb (1979) confirmed Neuringer's findings and came to the conclusion that suicide attempters can be viewed as not possessing the ability to display diversity in coping with their stressors. The cognitively rigid person has difficulty in conceiving and following through on suggestions of new behavioral options and may be deterred from contemplating anything other than his or her stressful situation. A suicide attempt for such individuals may become the only way to cope with their limited cognitive

resources and emotional problems. According to Williams & Lyons (1976), "this cognitive rigidity may in fact be linked to the general rigidity of family interactional studies of disturbed families" (p. 244).

Spirito, Overholser and Stark (1989) conducted a study examining the types of problems reported by adolescents and the cognitive and behavioral coping strategies utilized by them. All adolescents reported problems with boy/girlfriends, parents, school and friends. However, the suicide attempters reported problems with parents more often than the distressed or nondistressed control groups. As well, the suicidal adolescents appeared to use social withdrawal as their coping strategy more often than the control groups. The authors concluded that future research needs to examine whether suicidal adolescents stop using adaptive coping strategies, or whether social withdrawal is a characteristic of suicidal adolescents' coping strategies.

Spirito, Stark and Williams (1986) also found suicide attempters to have significantly fewer coping strategies than normal adolescents. The suicidal adolescents had significantly poorer problem solving strategies, and sought social support less often than the group of normal adolescents. Curan (1987) concluded that suicidal adolescents may either lack effective coping skills or they may be prone to avoidant coping strategies, including social

isolation or drug and alcohol use compared with adolescents who do not make a suicide attempt.

Adolescents who fail to learn effective coping skills, and are subject to parental modelling of alcohol and drug abuse and/or nonfatal suicidal behavior as a means to deal with stressful situations, will be ill prepared to generate and consider effective coping alternatives. A final personal characteristic often found in adolescents, impulsiveness, may play a significant role in whether an adolescent engages in suicidal behavior as a response to a chaotic environment.

Impulsiveness

Most suicide attempts by adolescents are found to be an impulsive response to a stressful situation (Hawton, Cole, O'Grady & Osborn, 1982; Williams & Lyons, 1976). Hawton, et al., (1982), using a sample of 13-18 year olds, 90 percent of whom were females who had attempted suicide by self poisoning, found that the majority of the attempts were impulsive in nature, with no serious suicidal intent, as little or no harm would have resulted if the adolescent suicide attempters did not have medical treatment. Kerfoot (1980) concluded that "in many cases the suicidal act is a sudden impulsive reaction to a precipitating situation, the impulsive quality being particularly characteristic of adolescence. At the same time, it is usually the result of multiple psychodynamic factors which have influenced the

adolescent's behavior over a long period of time" (p. 336). The impulsiveness characteristic in adolescence is often exacerbated by the drug/alcohol induced reduction of inhibitions. The severity of a suicide attempt may give indications as to whether the action was impulsive or more carefully planned.

It may be that after years of existing in a disorganized background and attempting to cope without the necessary skills with such problems that the adolescent finally becomes overwhelmed with the situation and depression manifests itself. Depressive feelings may have been present for a number of years, however, with the onset of adolescence and the overburden of years of problems, the adolescent can no longer cope.

This literature provides the context for the first stage of the model used in this study. The next section reviews the literature specifically addressing the variables studied in this project.

Adolescent Depression

Adolescent depression is the first variable in the portion of the model being tested. Depression has been found to be one of the most prevalent characteristics of suicidal adolescents (Kandel & Davies, 1982; Kaplan, Nusbaum, & Skimorowsky, 1984; Paton, Kessler, & Kandel, 1977; Robbins & Alessi, 1985). Depression includes symptoms such as mood variation, including deep, continuing sadness,

sleep and eating disturbances, and fatigue, and cognitive problems with respect to concentration and attention. Depression, nonfatal suicidal behavior and completed suicide are related to one another but this does not imply a linear relationship. Yet, as approximately 70% of all young persons attempting suicide have a history of depressive symptoms (Robbins & Alessi, 1985), this factor must be examined more closely.

Rates for depression in a general population of adolescents vary. In Rutter's Isle of Wight (1976) study of a population of 4,208 14 and 15 year olds, 41.7% of boys and 47.7% of girls reported dysphoria. The six item self report inventory estimated major affective disorder in 13% to 28% of the sample. However, findings based on only six items may be tenuous. Albert and Beck (1975) found 33% of seventh and eighth grade students to be experiencing moderate to severe depression, but these research findings were based on a sample of 63 adolescents. Larger sample sizes are necessary to determine if this rate of depression is prevalent in the general population of adolescents. An Ontario child health study (Offer et al., 1987) examined the prevalence of child psychiatric disorders (conduct disorder, hyperactivity, emotional disorder and somatization) of children 4 to 16 years of age. Results indicated that 18.1% of children in Ontario have a psychiatric disorder lasting six months.

Kandel's (1982) research on adolescent drug use in a general population resulted in interesting findings with regard to adolescent depression. A major finding of her longitudinal study of adolescent drug use was that depression was an important predictor of drug use. She concluded that illicit drug use may be used as self medication by some adolescents to relieve their depressed state. In her review of the literature, she suggests that "the use of certain drugs may help adolescents handle various forms of psychological stress such as low self esteem of depressive moods" (p. 341). Gender differences were also found in the study. The findings indicated higher levels of depression, dysphoria, or depressive symptomatology for females than males. These gender differences were seen as early as adolescence. She also found that these gender differences were greater in adolescence than in adulthood. The levels of self reported depressive moods were higher among adolescents than among their parents. The sharp generational differences in depressive symptomatology suggests that young people experience more depressive affect than their parents.

Kashani, Rosenberg and Reid (1989) conducted a study with 210 children ages 8, 12 and 17 years to determine the distribution of depressive symptoms in a normal population. Their results found that the 8 and 12 year olds were similar in terms of a DSM III depressive disorder (1.4% prevalence

in both groups) while prevalence of a depressive disorder in late adolescence was four times higher (5.7%). As well, the depressive disorders for the 17 year olds were related to suicidal ideation. The authors concluded there is preliminary support for developmental studies in depression, however, this study was cross-sectional. Longitudinal studies need to be conducted to determine support for developmental stages of depression.

With respect to suicidal adolescents, depression is a common feature. Robbins and Alessi (1985), found that the seriousness of intent for suicide was highly associated with depression and negative self evaluation, as well as hopelessness, anxiety, insomnia, and alcohol abuse. The medical lethality of the suicidal behavior was highly associated with depression as well as negative self evaluation and drug and alcohol abuse. Hopelessness has been found to be a core characteristic of depression (Bonner & Rich, 1987). Bonner and Rich (1987) found that college students with a high degree of hopelessness were more likely to move from suicide ideation to more overt forms of suicidal behavior including drugs and alcohol abuse. Rotheram-Borus and Trautman (1985), examined hopelessness, depression and suicide intent among 102 female adolescents aged 12-17. Included were 44 suicide attempters, 35 psychiatrically disturbed and 23 nondisturbed normals with no psychiatric or suicidal history. Results indicated that

42% of the suicidal females were diagnosed with a major depressive disorder. Statistical analyses found that the suicidal adolescents and psychiatric controls were not significantly different with respect to depression or hopelessness. However, the normal group of females volunteered for the study which may have an effect on the results.

Some adolescents may experience depression as part of the maturation process (Erikson, 1968). However, the intensity and severity of depression can play a factor in an adolescent's psychological health. Depressive features can interfere with the mental and emotional development of the child and adolescent. The withdrawal associated with depression can interfere with development of social, emotional and cognitive skills. Adolescent depression needs to be addressed not only because of the problems it creates in adolescence, but because evidence has been found to suggest that depression found in childhood can carry over into adulthood (Poznanski, Kraheneuhl & Zrull, 1976).

Prevalence of Drugs and Alcohol Use and Suicide

Alcohol and drug abuse are often reported by adolescents to be used as defense mechanisms to combat depression and a sense of hopelessness (Kandel & Davies, 1982; Kaplan, et al., 1984). However, excessive alcohol or drug ingestion may actually lead to loss of control over suicidal impulses.

In a review of the literature, Stanton (1979) concluded that drug use by adolescents may be a form of suicidal behavior. Wright (1985), found that both high school and college students having suicidal ideation were significantly more likely than students without suicidal thoughts to see themselves as having a drinking and/or drug problem. However, the study does not define what constitutes a drinking or drug problem. Studies of adolescent drug use have found a high prevalence of use within the general population. A national cohort study of American high school seniors found that lifetime prevalence of alcohol use was 93%, 71% for smoking and 60% for marijuana use (Johnston, Bachman, and O'Malley, 1981). They also found that one quarter (27%) of daily marijuana users said they used marijuana to get away from their problems, while 94% used it to feel good or to get high. A Canadian survey of alcohol use among students ages 12-19 found use in the previous 12 months to be 64%, while one quarter of all 12-18 year olds in Canada have tried marijuana at least once (Statistics on Alcohol and Drug Use, Vol. I & II, 1984).

A longitudinal study of junior and senior high school students found that lowered self esteem predicted the onset of the use of various drugs including marijuana, alcohol, and narcotics (Kandel, 1982). Subsequently, the use of any of these substances led to the improvement of self esteem (Kaplan, 1980). Depressive moods also predicted initiation

of marijuana use by non users and other drugs by marijuana users, which was found to be associated with a decrease in the level of self reported depression over time (Paton, Kessler & Kandel, 1977). These findings suggest that drug use may be serving a self medicating function.

A retrospective chart study conducted by Meffer, Newcorn, Kaplan, Mizruchi and Plutchik (1988) of suicidal behavior in 200 adolescent psychiatric inpatients found alcohol abuse to be a significant predictor of suicidal behavior for both males and females. Although this study utilized standardized coding sheets for the review, and reliability checks, retrospective studies need to be replicated with adolescent responses for these variables.

Research conducted with adolescent drug abusers (Berman & Schwartz, 1990) found drug abusers to be more likely to make a suicide attempt than non-drug users. They concluded that self-perceived childhood loneliness was the most important mediator of adolescent drug use and later suicidal behavior. Berman and Schwartz suggest that

> this research has documented that drug-using adolescents who make suicide attempts can be differentiated from both non-drug using control adolescents and nonattempting drug users... The full value of the research lies in the further subgroup discrimination of risk factors, i.e., between attempter users and controls and attempter users and nonattempter users (p. 313).

The authors do recognize that the results are based on retrospective questionnaire interviews which need to be viewed with caution.

Studies of adolescent drug use have also been correlated to parental use of alcohol and parental values. According to Kandel (1982), "characteristics of the parent-adolescent relationship predict marijuana initiation" (p. 340), with a lack of perceived closeness to the parent as a predictor of drug use other than marijuana (Kandel et al., 1978). Kandel and Davies (1982) concluded that parents influence children as models, and through social reinforcement of values and beliefs through the social learning process (Bandura, 1977).

Alcohol and drug use or abuse have been found to be prevalent in families of suicidal adolescents, both by the adolescent and by their parents. Drug use is often associated with a suicide attempt of a family member (Tishler & McKenry, 1982; McKenry, Tishler, & Kelley, 1983). In a study of 12-18 year old adolescent suicidal attempters by McKenry, Tishler, and Kelley (1983), thirty-nine out of forty-six of the adolescents used a drug or combination of drugs belonging to a parent for a suicide attempt. Additionally, Headlam et al. (1979) found drug use to be related to repeated self poisoning. In their study, almost fifty percent of those who had repeated incidents of suicidal behavior and only twenty-five percent of the total

group had a history of alcohol abuse. With regards to drugs, nearly thirty-five percent of the repeat attempters abused drugs, and only twenty percent of the nonrepeaters had a problem with drug abuse.

Alcohol and drug use may be a form of self medication for both parent(s) and adolescent. However, once mind altering substances are used to cope with life's problems, and a person becomes accustomed to them, the intake of an overdose (which is often labelled as a suicide attempt) is often just a matter of time (Diekstra, 1985). Tishler et al. (1983) concluded that "both drug use and suicidal behaviors tend to be related to similar disturbed patterns of family interaction, particularly negative parenting styles that result in deficient adolescent coping abilities" (p. 167). Substance use appears to become the method with which adolescents attempt to cope with an increasing number of problems.

The literature review, supports a possible link between depression and substance use by suicidal adolescents. However, whether this link differentiates suicidal from psychiatric and general control adolescents is not known. The present study will focus upon the assessment of these relationships.

Research Hypotheses

The following hypotheses were formulated to test the relationships between the variables proposed in the model in chapter two.

1. Adolescent drug and/or alcohol use (amount and frequency) will be more prevalent among those who have attempted suicide than those who have not.
2. Perceived parental drug and/or alcohol use will be positively related (amount, frequency and reason for use) to adolescent alcohol/drug use.
3. Differing levels of depression and suicidal behavior will be found among the groups, with the suicidal group reporting higher levels than the psychiatric and control groups, and the psychiatric group reporting higher levels than the general control group.
4. Adolescent drug and/or alcohol use will be positively related to adolescent depression and suicidal behavior.
5. Presence of drugs and/or alcohol at the time of the attempt will be positively related to the lethality of the attempt.

CHAPTER FOUR

METHODOLOGY

This chapter will include a review of the research procedures utilized in this study. A description of the research participants, the test instruments, the research procedures, as well as the procedures for statistical analyses will be presented.

Description of Participants

Three samples, each consisting of 19 to 21 adolescents were obtained for the study. Adolescents were defined as youth who were between the ages of 12-17. Both males and females were sampled. The groups were matched as closely as possible according to age and gender. The first group of participants consisted of 21 adolescents admitted for suicidal behaviors at a major Western Canadian city hospital. Such suicidal behaviors included suicide attempts and suicidal ideation. Two comparison groups were utilized, one including 21 adolescents with no history of psychiatric or chronic illnesses; the other group consisting of 19 nonsuicidal, psychiatric adolescents admitted under the care of a psychiatrist, at either a major city hospital, or at a child psychiatric inpatient treatment facility.

The suicidal group of adolescents consisted of adolescents admitted to hospital due to suicide ideation, or actual self harming behavior, and who had come to the

attention of the psychiatric department for a consultation. Generally, there were two forms of self harming behavior observed in this group: an overdose of medication (over the counter, or prescribed for the adolescent or another family member) or slashing of the wrists.

Inclusion criteria for the psychiatric group of adolescents was admission to a psychiatric treatment unit, either a hospital ward, or an inpatient treatment unit in a therapeutic setting. These adolescents may have engaged in suicidal behavior previously, however this could not be the reason for the current admission. Diagnoses included behavioral disorders, depression, anorexia and other diagnoses based on DSM-III criteria.

Criteria for inclusion in the general nonpsychiatric, nonsuicidal control group were absence of previous psychiatric treatment, and chronic disease. Initially, the research design was such that all groups would be obtained from within a hospital setting to ensure as homogeneous a sample as possible. However, problems arose in obtaining the general hospital control group. It was found that with this age group of adolescents, those hospitalized were generally too ill to be included. In addition, many of these adolescents had a serious chronic disease such as Crohn's, cancer, or juvenile diabetes. Thus, it would be difficult to determine if depression, suicidal thoughts or drug or alcohol use, if present, would be due to problems

associated with the illness or other reasons. Adolescents with other illnesses, such as tonsillitis, appendicitis, or broken bones were often treated as day patients and therefore this group of adolescents were also inaccessible.

To maintain similarity in the sample, it was determined that adolescents who came into contact with the medical profession would be an acceptable sample pool. Physicians, including pediatricians and general practitioners, were contacted as a possible source for the general control group. This source proved somewhat more fruitful, especially in obtaining males, however again, there were very few adolescents available from this source. Possible explanations for the lack of adolescents coming for medical attention in this age group are: 1) they are a fairly healthy age group, or 2) when they do become ill, they may tend to go to a medicenter for immediate treatment with neither follow-up with their own medical doctor, nor hospitalization being necessary.

To obtain a sufficient number of general control participants a number of sources were utilized. Thus the group consisted of hospitalized adolescents, adolescents seen by their physician at a medical center, and other adolescents known to the researcher, some of whom were recruited from a church group.

Study Procedure

Before the study was undertaken, ethical approval was received both from a university ethics review and the Ethics Review Committee for Human Experimentation at the hospital where the research was conducted. Approval to conduct the research was also obtained from both the psychiatric and pediatric hospital departments.

Suicidal Participants

Upon request for psychiatric consultation, the psychiatrist obtained permission from the identified adolescent to have their name given to the researcher for possible inclusion in the study. The researcher made contact as soon as possible after admission with the participant's parent(s) or guardian to obtain their informed written consent. The purpose of the study was then explained to the adolescent, and their written consent to participate obtained.

The suicidal adolescent completed the required questionnaires in hospital, in the presence of the researcher. Upon completion of the questionnaires, a structured interview was conducted. The interview focused on the events leading up to the self harming behavior, as well as the attempt itself, and the adolescent's thoughts and feelings at the time. Demographic information as well as a psychiatric history were obtained from the adolescent's medical chart.

Psychiatric Control Group

The research procedure was the same for this comparison group, excluding the interview. The data collection was conducted at a time convenient to the adolescent. Demographic information and patient history was also obtained from the adolescent's chart.

General Control Group

Contacting and obtaining permission to interview the general control adolescents, including those hospitalized or those with an appointment with their physician, the procedure was the same as for the psychiatric group. The adolescents completed the questionnaires in the presence of the researcher at the hospital or medical clinic. No interview was conducted nor was the researcher able to obtain any information from the adolescent's chart.

For the remaining adolescents, the researcher contacted parents of adolescents either known or referred to the researcher as possible participants. Upon informed verbal consent from both parent(s) and the adolescent, a time was scheduled for the questionnaires to be answered at the adolescent's home with the researcher present. At that time, written consent was also obtained. Again, no interview was conducted following the written questionnaires.

Demographic Information

Demographic information and patient history was obtained from the patient's chart to supplement and confirm any information supplied by the adolescent from the questionnaires. This included government custody status, school failure, family structure, patient diagnosis, and information regarding past and/or present suicidal behavior. This information was particularly important to determine if there were any inconsistencies in information obtained from the adolescent. As well, many of the adolescents were unable to provide educational and occupational status of their parent(s) often included on the chart, which was necessary to determine socioeconomic status.

Socioeconomic Status

Socioeconomic status was planned to be determined utilizing Hollingshead's Two factor scale, based on income and education level of both parents. However, there were some problems with this scale as it was difficult to determine scores for parents who were on social assistance. A large number of parents were on some form of social assistance including welfare or unemployment assistance. As well, a number of children lived with their mothers only and it was undetermined whether the mother received any form of alimony to supplement her income.

Another problem arose due to the large number of participants who were under government care. Some of these adolescents did not know the level of their parent's education or specific occupation. Therefore, a score could not be obtained for socioeconomic status. As some of these adolescents were under government custody for some time, the question arises as to the relevance of the parental socioeconomic status. Therefore, it was determined that because there were a large number of cases where the socioeconomic status could not be calculated, comparison between the groups on this measure was considered to be meaningless.

Description of Standardized Tests

The major instrumentation included four tests administered in a questionnaire format. These included the Child Depression Inventory, (Kovacs, 1983); the Suicide Probability Scale, (Cull & Gill); a Drug Use Questionnaire, (Skinner, 1982) and an Alcohol Use Questionnaire, (Skinner, 1984). All adolescents completed these questionnaires, while the researcher and a physician completed the Lethality of Suicide Attempt Rating Scale (Smith, Conroy, & Ehler, 1984), according to scale instructions.

Child Depression Inventory

The CDI (Kovacs, 1983) is a self administered 27 item multiple choice inventory for children ages 8-17 measuring cognitive, affective and somatic features associated with

depressive symptomatology. Each item has 3 choices, with scoring ranging from 0 to 2, with a higher score indicating increasing levels of depression. The scale is divided into four levels of severity of depression with a score of 13 as the indication of moderate levels of depression. Kovacs (1985) reported an internal consistency reliability (coefficient alpha) of .86, while Reynolds, Anderson & Bartell (1985) reported a score of r=.90 with school children. Reynolds et al. (1985) also reported item-total correlations ranging from .22 to .62. Test-retest reliability over a one month interval was r=.72 (n=78) (Kovacs, 1985).

Suicide Probability Scale

The SPS (Cull & Gill) is a 36 item, 4-point Likert self administered measure that assesses suicide risk with four clinical subscales: hopelessness, suicide ideation, negative self evaluation and hostility. The scale is scored in the direction of increasing suicide risk. It is appropriate for ages 13 and up. Split-half reliability using Spearman-Brown corrected correlation coefficients ranged from .58 to .88 with a correlation of .93 for the total scale. Test-retest reliability coefficients ranged from .92 ($p<.001$) (n=80) 3 weeks apart, and .94 ($p<.001$) (n=478) 10 days later. Item to subscale correlation coefficients ranged from .51 to .75, and subscale to total correlations from .67 to .92. Subscales are also scored in

the direction of increasing risk, with a high score indicating a high assessed risk within that particular dimension of the scale.

Drug Abuse Scale

The Drug Abuse Scale (Skinner, 1982) is a 20 item self-administered test that provides a brief index of consequences related to drug abuse. Questions are scored 0-1, with a higher score indicating greater drug use. Internal consistency reliability estimates range from .94 (n=223) with a sample of drug and alcohol abusers, to .84 (n=80) in a sample of drug abusers (Skinner, 1984).

Alcohol Dependence Scale

The Alcohol Dependence Scale (Horn, Skinner, Wanberg, & Foster, 1984) provides a measure of the severity of alcohol dependence. The scale consists of 25 items scoring from 0 to 4, and differentiates from no alcohol use (score of 0) to low (1-13), moderate (14-21), substantial (22-30) and severe levels (31-47) of alcohol use. According to Skinner (1984), reliability estimates for the inventory are all above .90.

The Lethality of Suicidal Attempt Rating Scale

The LSARS (Smith, Conroy, & Ehler, 1984) is a scale designed to measure the degree of lethality of a suicide attempt. The scale is composed of 2 assessments: a) the actual lethality of the method used, and b) the circumstances surrounding the attempt (e.g. planned in order to be saved, versus being unexpectedly found). The severity

of the attempt is modified according to the circumstances surrounding the attempt. The scale ranges from 0 to 10 and classifies suicide attempters into three categories: serious (a score of 8.0 or higher); moderate (4.0 to 7.9); and low lethality (0 to 3.9). Intra class correlation of raters, irrespective of professional disciplines, is high at both the individual level within a discipline ($r=.85$) and at the group level ($r=.99$).

Data Analyses

Descriptive statistics including chi-square were used to describe the sample as well as to detail various aspects of drug and alcohol use by the adolescents in all groups. A chi-square test was run to determine the relationship between the lethality of suicide attempt, and the prevalence of drug and alcohol use by the suicidal adolescent. Initially, a chi-square test was also to have been run to determine the relationship of the lethality of the attempt, and the presence of drug and/or alcohol use at the time of the attempt. However, none of the suicidal adolescents had used drugs or alcohol at the time of the attempt, therefore no test was run. To determine differences among mean scores of the groups for the main variables, including scores on the depression inventory, the suicidal probability scale and the four subscales, and the alcohol and the drug scales one-way analyses of variance were performed. Discriminant analyses were also performed to determine the linear

combination of variables that best discriminates between the groups, as well as to determine the number of cases correctly classified according to these variables.

CHAPTER FIVE

RESULTS

This chapter includes a presentation of the results of the study. Demographic and descriptive data will be presented first, followed by an examination of the results for each hypothesis. Statistical analyses were not conducted to determine gender differences due to the small number of males in this sample.

Description of Sampled Groups

The sample consisted of 61 adolescents; 21 suicidal (16 females, 6 males), 19 psychiatric (13 females, 6 males), and 21 general control adolescents (16 females, 5 males). Table 1 summarizes the distribution of the key descriptive variables for these samples. In chi-square tests, the groups did not differ significantly in age (See Appendix, Table A1). Significantly more suicidal and psychiatric adolescents had failed a grade in school x^2 (2, N=15) = 10.45, $p<.005$, were under government custody x^2 (2, N=14) = 9.78, $p<.007$, and parents were divorced in comparison to the general control group x^2 (2, N=26) = 14.10, $p<.001$. When only the suicidal and psychiatric samples were compared, however, no differences were found.

Table 1
Demographic Data

	Suicidal n %	Psychiatric Controls n %	General Controls n %
Gender			
Male	5 (23.6)	6 (31.6)	5 (23.8)
Female	16 (76.2)	13 (68.4)	16 (76.2)
Age			
Mean	14.3 yrs.	14.7 yrs.	14.4 yrs.
Range	12-16	13-17	12-17
Failure of a Grade	8 (38.1)	7 (36.8)	0
Parents Divorced	15 (71.4)	8 (50.0)	3 (14.3)
Government Custody	8 (38.1)	6 (31.6)	0

Suicidal Adolescents

Information was gathered from the suicidal adolescents regarding motivation, precipitants and method of the suicide attempt. The majority in the suicidal group were admitted to hospital due to an overdose of medication (57.1%), either their own or another family member's, or of over-the-counter medication. Moreover, the most predominant precipitants for suicidal behavior involved the piling up of problems (76%). Table 2 summarizes these data.

It should be noted that nearly equal numbers of adolescents said they had not wanted to die, just attract attention, as those adolescents who stated they had wanted

to die. Subsequent questions revealed that fourteen of the adolescents said they might attempt suicide again, while seven said they thought things had improved, and they would not engage in suicidal behavior. Since the onset of the study, two adolescents are known to have attempted suicide again.

Table 2
Description of Suicidal Motivations, Precipitants and Method of Suicide Attempts
( ) = percentage
n = 21

Motivation	
Attention-seeking	9 (42.9)
End the pain	8 (38.1)
Revenge manipulation	4 (19.0)
Precipitant	
Argument	3 (14.3)
Pile-up	16 (76.2)
Anger	1 (4.8)
Unknown	1 (4.8)
Method	
Overdose	12 (57.1)
Scratching wrist	5 (23.8)

Based on the Lethality of Suicide Rating Scale (Smith, Conroy, & Ehler, 1984), three of the adolescents (14.3%) had made a serious suicide attempt, one had made a moderately lethal attempt, and seventeen adolescents (81.0%) were rated as having made a low lethal suicide attempt.

Psychiatric Adolescents

The psychiatric group of adolescents were admitted for treatment for a variety of reasons. The majority were diagnosed as having behavioral problems (n=10), while four adolescents were diagnosed with major depression. Five female adolescents were diagnosed as having an eating disorder; three with anorexia nervosa, and two with bulimia. Note that according to information gathered from treatment records, five of the adolescents had made a previous suicide attempt.

Hypothesis 1

The first hypothesis stated that drug and/or alcohol use would be more prevalent among suicidal adolescents than nonsuicidal adolescents. A description of alcohol and drug use by the adolescents in all groups will be presented first, then the results for the hypothesis will be discussed.

Alcohol Use

According to responses to the question, "In the past 12 months, have you consumed any alcohol?", alcohol was used by 68.8% of the total sample (n=42). Approximately 86% of the suicidal adolescents had consumed alcohol at some time, compared with 73.6% of the psychiatric and 47.6% of general control adolescents. Based on scores from the Alcohol Dependence Scale, which measures the severity of alcohol dependence, 85.7% of the suicidal group, 68.4% of the

psychiatric group and 28.6% of the general control adolescents showed dependence on alcohol. Low to moderate dependence on alcohol was noted for 71.4% of the suicidal group, 68.4% of the psychiatric group, and 28.6% of the general control adolescents. The suicidal adolescents' response in this measure were the only ones which fell into the substantial to severe alcohol dependence category (14.3%, n=3).

Drug Use

With respect to drug use, 68.4% (n=19) of the total sample had experimented with drugs at sometime in their life (42.8% of the suicidal adolescents, 42.1% of the psychiatric controls, and 9.5% of the general controls). Marijuana was the drug of choice, as all adolescents that reported drug use had either tried or regularly used marijuana. Only six of the total number of adolescents had used more than one drug. Of those six, three were in the suicidal group, and three in the psychiatric group. Of the suicidal adolescents, 88.8% used marijuana at least weekly, while 75% of the psychiatric adolescents used it weekly or daily as well. The two adolescents in the general control group who reported drug use stated they had used marijuana only occasionally.

With respect to use of other drugs, three suicidal and three psychiatric adolescents also used chemicals (PCP, LSD, or speed), prescription drugs and cocaine. Due to the small

numbers of adolescents stating use of specific drugs, further breakdowns were not conducted.

To test the first hypothesis, two statistical analyses were conducted. First, chi-square tests were run to determine if there were differences among the distributions of the groups regarding alcohol or drug use in the past year. Statistically significant differences with respect to alcohol consumption in the past year were found with more suicidal and psychiatric adolescents consuming alcohol than general control adolescents (see Table 3). While, no statistically significant differences were found with respect to drug use in the past year, the results approached significance x^2 (2, N=61) = 5.19, p<.07. Again, more adolescents in the suicidal and psychiatric group used drugs than the general control group (Table A2 in Appendix).

Second, to determine differences between the groups on mean scores for alcohol dependence and drug abuse, a one-way analysis of variance was performed. No significant differences were found between the group means for alcohol dependence, although the test results were approaching significance F (2,58) = 2.86, p<.07 (Table A3 in the Appendix). No significant differences were found between the group means for drug abuse (Table A4 in the Appendix).

Table 3
Chi-Square Results:
Alcohol Consumption Between the Three Groups

		Suicidal	Psychiatric Control	General Control
No Alcohol Consumption	n	3	5	11
	row%	15.8	26.3	57.9
	column%	14.3	26.3	52.4
Alcohol Consumption		18	14	10
		42.9	33.3	23.8
		85.7	73.7	47.6

Total = 61
x^2 = 7.40578 df=2 p<.0247

Additional questions were asked on the questionnaires to gain more information regarding most recent consumption of alcohol and/or drugs. To assess differences among the groups on the additional questions, chi-square analyses were again performed. On the drug questionnaire, questions focused on last usage of drugs, including length of time since last used, presence of others, and affect at the time (See Tables A5, A6, A7 in Appendix). No significant differences were found.

Additional questions on the alcohol questionnaire were also specific to the last time of alcohol consumption, including length of time since last drink, presence of others, if any, when drinking, affect when drinking and amount consumed. While no significant differences among the three groups were found, on the alcohol questions for recent

versus past use and being alone versus being with others while drinking (Appendix Tables A8, & A9), a significant difference was found with respect to the distribution of affective response to drinking (Table 4). Specifically, more adolescents in the general control group reported more positive feelings while they were drinking than did the suicidal or psychiatric group. There was a significant difference among the distribution of amount of alcohol consumed, where adolescents in the suicidal and psychiatric group reported consuming more alcohol (enough to get drunk or pass out) than did the general control group of adolescents x^2 (4, N=40) = 17.12, p<.001 (Table 5).

Table 4
Chi-Square Results: Frequencies of Suicidal, Psychiatric and General Controls With Respect to Affective Response to Drinking

		Affective Response Positive	Negative
Suicidal	n	6	10
	row%	37.5	62.5
	column%	28.6	52.6
Psychiatric Control		6	8
		42.9	57.1
		28.6	42.1
General Control		9	1
		90.0	10.0
		42.9	5.3
Total = 40			
x^2 = 7.60472	df=2	p<.0223	

Table 5
Chi-Square Results:
Frequencies of Suicidal, Psychiatric and General Controls in Amount of Alcohol Consumed

		Amount of Alcohol		
		To get high or less	To get drunk	To pass out
Suicidal	n	3	8	5
	row%	18.8	50.0	31.3
	column%	25.0	53.3	38.8
Psychiatric Control		1	6	7
		7.1	42.9	50.0
		8.3	40.0	53.8
General Control		8	1	1
		80.0	10.0	10.0
		66.7	6.7	7.7

Total = 40
x^2 = 17.12152 df=4 p<.0018

Hypothesis 2

The second hypothesis predicted that adolescent alcohol and drug use would be associated with perceived parental alcohol and drug use. Prior to testing, chi-square analyses were performed to determine if there were any significant differences in the adolescents' perception of alcohol and nonprescription drug use by his/her father and mother and perceived parental values regarding drug and alcohol use by both males and females. No significant differences emerged in reported frequencies among the groups in perceived alcohol and drug use by mothers or fathers (Table A10 & A11 in Appendix). In the suicidal group, 21.4% of the

adolescents thought their father used drugs, and 18.8% thought their mother used drugs. In the psychiatric control group 13.3% believed their fathers used drugs, and 11.1% believed their mothers used drugs. With respect to the general control group, 18.0% of fathers and 5.3% of mothers were believed to use drugs.

With respect to alcohol, the majority of parents in all groups were believed to use alcohol, fathers more than mothers. No statistically significant group differences were found regarding perceived parental values towards drug and alcohol use either (Table A12 & A13 in the Appendix). A very high percentage of all adolescents sampled perceived that their parents disapproved of adolescent drug and alcohol use.

To determine if adolescent drug and alcohol use was related to parental use, chi-square analyses were performed with each of the groups, comparing the adolescent's responses to the question of alcohol use in the past year to perceived parental drug/alcohol use and perceived parental values of substance use by adolescents. No significant differences among any group with regard to adolescent alcohol use and perceived parental use or values (Tables A14, A15 & A16 in Appendix) were found. With respect to drug use, no significant differences were found between the suicidal and psychiatric groups on any of the variables (Table A17 & A18 Appendix). Chi-square tests were not run

with the psychiatric group on adolescent drug use and perceived parental values since all adolescents perceived their parents to disapprove of drug use by adolescents.

For the general control group, significant differences resulted between the distributions of adolescent drug use and perceived fathers drug use (Fisher's Exact Test, one-tailed $p<.004$) (See Table 6), but not between adolescent drug use and perceived mother's use (See Table 17 in Appendix). However, with the majority of adolescents did not use drugs, and perceived their parents did not use drugs either, therefore these test results are based on a small number of adolescents only. As well, significant differences were achieved between adolescent drug use and perceived parental values regarding drug use by males x^2 (2, $N=21$) = 9.39, $p<.01$. The majority of males did not use drugs, and believed parents disapproved of drug use (See Table 7). A chi-square test was not performed with adolescent drug use and perceived parental values regarding drug use by females as all adolescents perceived parental disapproval for drug use by females.

Table 6
Chi-Square Results: Adolescent Drug Use With Perceived Parental Drug Use: General Control Group

		No Drug Use by Father	Drug Use by Father
No Adolescent Drug Use	n	16	0
	row%	100.0	
	column%	94.1	
Adolescent Drug Use		1	3
		25.0	75.0
		5.9	100.0

Total = 20
Fisher's Exact Test one-tail p<.00351

Table 7
Chi-Square Results: Adolescent Drug Use With Perceived Parental Values of Adolescent Boys' Drug Use: General Control Group

		Parental Values		
		Disapprove	Don't Care	Approve
No Adolescent Drug Use	n	17	0	0
	row%	100.0		
	column%	89.5		
Adolescent Drug Use		2	1	1
		50.0	25.0	25.0
		10.5	100.0	100.0

Total = 21
x^2 = 9.39474 df=2 p<.0091

Hypothesis 3

The third hypothesis predicted that suicidal adolescents would report higher levels of depression and suicide probability than those in the psychiatric or control groups. A one-way analysis of variance was performed to determine differences among mean scores in depression and suicide probability among the groups. Post hoc analyses including Duncan and Scheffe tests were run to determine the specific group differences. The group means differed significantly on the Child Depression Inventory sum score and the Suicide Probability Scale sum score, as well as on all of the subscales of the Suicide Probability Scale. Both the suicidal and psychiatric adolescents scored above the cut off of 13 for moderate levels of depression (means are 22.6 and 14.8 respectively). The average score for the general control adolescents was 7.5. All three group means differed significantly from each other as indicated in Table 8. The suicidal group reported higher levels of depression than the psychiatric and general control groups.

Table 9 indicates all three groups differed significantly on the Suicide Probability Scale F (2,58) = 23.68, $p<.01$. Specifically, the suicidal and psychiatric groups reported higher scores than the general control group. The control group's scores were classified as low probability for suicidal behavior, the psychiatric group's scores as moderate probability for suicidal behavior, and

the suicidal group's score as high probability for suicidal behavior. Results of the tests of means on the subscales on this measure found significant differences for each subscale. On the hopelessness subscale, all groups differed significantly, with the suicidal group reporting higher levels of hopelessness than the psychiatric and general control groups F (2,58) = 17.81, $p<.01$. For the suicide ideation, negative self evaluation and hostility subscales, significant differences were obtained between the suicidal and general control adolescents. The suicidal adolescents reported higher levels on these subscales than the general control adolescents.

Table 8
Summary Data From One-Way Analysis of Variance for the Child Depression Inventory for all Three Groups

	Suicidal	Psychiatric Controls	General Controls
n	21	19	21
M	22.667[a]	14.8421[b]	7.462[c]
SD	11.2175	7.6468	5.5192

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	2	2423.5689	1211.7845	16.8205*
Within Groups	58	4178.4311	72.0419	

*$p<.01$

Note: Cells having a common superscript do not differ significantly (Scheffe test).

Table 9
Summary Data From One-Way Analysis of Variance for the Suicide Probability Scale for all Three Groups

	Suicidal	Psychiatric Controls	General Controls
n	21	19	21
M	86.1429[a]	65.0526[b]	46.4762[c]
SD	23.0831	16.0526	14.9620

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	2	16541.8333	8270.9166	23.6770*
Within Groups	58	20260.7569	349.3234	
Total	60	36802.5902		

*p<.01

Table 10
Summary Data From One-Way Analysis of Variance for the Hopelessness Subscale for all Three Groups

	Suicidal	Psychiatric Controls	General Controls
n	21	19	21
M	26.7619[a]	20.7368[b]	12.8095[c]
SD	9.8077	6.3144	5.9382

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	2	2055.8583	1027.9292	17.8144*
Within Groups	58	3346.7318	57.7023	
Total	60	5402.5902		

*p<.01

Table 11
Summary Data From One-Way Analysis of Variance for the Suicide Ideation Subscale of the Suicide Probability Scale for all Three Groups

	Suicidal	Psychiatric Controls	General Controls
n	21	19	21
M	25.7619[a]	15.5263[a]	10.6667[b]
SD	8.9213	6.9392	4.3970

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	2	2487.1148	1243.5574	25.3501*
Within Groups	58	2845.2130	49.0554	
Total	60	5332.3279		

*p<.01

Table 12
Summary Data From One-Way Analysis of Variance for Negative Self Evaluation Subscale of the Suicide Probability Scale for all Three Groups

	Suicidal	Psychiatric Controls	General Controls
n	21	19	21
M	21.0476[a]	16.1053[a]	12.2381[b]
SD	9.9623	4.0400	3.5058

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	2	818.6617	409.3309	9.4041*
Within Groups	58	2524.5514	43.5267	
Total	60	3343.2131		

*p<.001

Table 13
Summary Data From One-Way Analysis of Variance for Hostility Subscale of the Suicide Probability Scale for all Three Groups

	Suicidal	Psychiatric Controls	General Controls
n	21	19	21
M	14.6190[a]	12.6842[a]	10.8095[b]
SD	5.4998	3.9165	4.0077

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	2	152.3928	76.1964	3.6758*
Within Groups	58	1202.2957	20.7292	
Total	60	1354.6885		

*p<.05

Hypothesis 4

The fourth hypothesis stated that adolescent drug and/or alcohol use would be positively related to depression, and to suicidal behavior. To test the hypothesis, Pearson's product moment correlation coefficients were calculated between the depression and suicide probability scores and both the alcohol and drug sum scores for all groups individually. For both the suicidal and psychiatric groups, no significant correlations were obtained (Table A19 & A20 in Appendix). Correlations calculated for the general control group resulted in significant correlations between the alcohol sum score and

suicide probability score (see Table 14). As the alcohol sum scores increased, the suicide probability scores increased as well. No other significant correlations were obtained (see Table A20 in Appendix). Scattergrams for the Pearson's Product Moment Correlation Coefficient calculated are presented in the Appendix (Figures 2-16).

Table 14
Pearson's Product Moment Correlations Between Alcohol Dependence and Suicidal Probability: General Control Group

	Alcohol Dependence
Suicide Probability n=10	r=.62 p<.03

As the Pearson's product moment correlation coefficient was calculated using the drug and alcohol sum scores, the analyses were calculated using only the adolescents who had reported drug and/or alcohol use. Separate one-way analysis of variance tests were performed for each group to determine differences in mean scores of depression and suicide probability scales to presence or absence of alcohol or drug use in the past year. For the suicidal adolescents a significant difference was found only with alcohol use and suicide probability F (1,19) = 1.45, $p<.03$ (See Table 15), whereby adolescents who did not consume alcohol reported

higher levels of suicide probability. Significant differences were not found on the other variables (See Tables A21-A23 in Appendix). For the psychiatric group, significant differences were obtained with alcohol use and suicide probability F (1,17) = 4.30, $p<.05$ (See Table 16). Again, adolescents who did not use alcohol reported higher levels of suicide probability. A significant difference was not obtained with alcohol use and depression (See Table A24 in Appendix). Significant differences were obtained with drug use and the depression score F (1,17) = 10.18, $p<.005$ and the suicide probability score F (1,17) = 12.12, $p<.002$ (See Tables 17 & 18). Adolescents who did not use drugs reported higher levels of depression and suicide probability. With the general control group, a significant difference was obtained with the depression score and alcohol use F (1,19) = 4.74, $p<.04$ (See Table 19) but not with the suicide probability scale (See Table A25 in Appendix). Adolescents who reported alcohol use reported higher depression scores. Significant differences were obtained with drug use and depression scores, and suicide probability (See Tables 20 & 21). Adolescents reporting drug use reported higher levels of depression and suicide probability.

Table 19
Summary Data From One-Way Analysis of Variance for Alcohol Use and Depression Scores for the General Control Group Adolescents

	No Use	Use
n	11	10
M	5.1818	10.0000
SD	3.7899	6.1824

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	1	121.6017	121.6017	4.7380*
Within Groups	19	487.6364	25.6651	
Total	20	609.2381		

*p<.04

Table 20
Summary Data from One-Way Analysis of Variance for Drug Use and Depression Scores for the General Control Group

	No Use	Use
n	17	4
M	6.3529	12.2500
SD	4.8855	6.1847

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	1	112.6057	112.6057	4.3080*
Within Groups	19	496.6324	26.1385	
Total	20	609.2381		

*p<.05

Table 21
Summary Data from One-Way Analysis of Variance for Drug Use and Suicide Probability Scores for the General Control Adolescents

	No Use	Use
n	17	4
M	42.7647	62.2500
SD	10.8082	21.4379

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	1	1229.4293	1229.4293	7.1923*
Within Groups	19	3247.8088	170.9373	
Total	20	4477.2381		

*p<.01

Hypothesis 5

The fifth hypothesis was specific to the suicidal group and predicted that presence of drugs or alcohol at the time of the attempt would be positively related to the lethality of the attempt. This hypothesis could not be tested as no adolescents had consumed alcohol or drugs at the time of the attempt. This was confirmed by both information on the chart by the attending physician, and by the adolescents' own admission.

The Pearson's Product Moment Correlation Coefficients between lethality and previous drug use and alcohol use were

not statistically significant. Scattergrams for the correlations are found in the Appendix (Figures 17-18).

Additional Analyses

Due to the differences found among the groups for family structure, a one-way analysis of variance was run for each group on each of the main variables (depression, suicide probability, alcohol dependence and drug abuse) comparing intact and non-intact families. A significant difference between intact versus non-intact families was only found in the suicidal group on the depression variable F (1,19) = 5.44, $p<.03$ with the suicidal group reporting higher levels of depression.

Based on the significant differences previously reported between the groups with variables such as family structure, grade failure, government custody, depression, alcohol and drug use, a step-wise discriminant function analysis was performed to determine if any of these variables could more accurately predict which adolescents would attempt and which adolescents would not attempt suicide. In using this procedure, the suicide probability score was omitted as the goal was to discriminate between the variables that may play a factor in suicidal behavior.

The step-wise discriminant function analyses resulted in the following combination of variables including depression, family structure, and alcohol use, as indicated in Table 22. These variables distinguishes among the

members of the three groups. The number of cases correctly identified using these variables was 71.43%. Seventy percent of the suicidal, 57.1% of the psychiatric and 100% of the general control groups were predicted correctly. A second discriminant function analysis was performed using only the suicidal and psychiatric groups for comparison. Table 23 shows that two of the same variables resulted: depression and alcohol dependence, with 82.35% of the cases correctly classified. The number of cases correctly classified using these variables were 80% of the suicidal group, and 85.7% of the psychiatric group.

Table 22
Step-wise Discriminant Analysis:
Variables Ordered by Size of Correlation Within the Function for all Three Groups

	Function 1 (largest ratio of between groups to within groups sum of squares)	Function 2 (next largest ratio of between groups to within groups sum of squares)
Depression	0.62508	-0.37822
Alcohol Dependence	0.44127	-0.32203
Family Structure	0.06959	0.06366
Grade Failure	0.13378	0.71654
Drug Abuse	0.17388	0.48048
Government Custody	0.35272	0.46945

Table 23
Step-wise Discriminant Analysis:
Variables Ordered by Size of Correlation Within the Function for the Suicidal and Psychiatric Groups

Depression	0.72915
Alcohol Dependence	0.54027
Grade Failure	-0.20944
Government Custody	0.08623
Drug Abuse	0.06966
Family Structure	-0.03400

CHAPTER SIX

DISCUSSION AND CONCLUSION

This chapter will include a discussion of the research findings in relation to previous research and to the developmental model presented. As well, limitations of the study will be explored, with suggestions for future research.

Summary of Key Findings

Hypothesis one stated that alcohol and drug use would be more prevalent among suicidal adolescents. The results of this study indicated that more suicidal adolescents use alcohol than the psychiatric or general control groups of adolescents. As well, the suicidal adolescents appear to use alcohol to a greater degree than either of the other two groups. Results indicated little drug use by any of the adolescents, and no significant differences between the groups.

Hypothesis two stated that adolescent substance use would be positively related to perceived parental substance use and values. No significant results were obtained regarding adolescent alcohol use and parental use with any of the groups. With respect to drug use no significant differences emerged with the suicidal group. The majority

of the adolescents in both the psychiatric and general control did not consume drugs, and their parents did not approve of drug use by adolescents.

Hypothesis three predicted the suicidal group would report higher levels of depression and suicide probability than the psychiatric group of adolescents, and in turn, they would report higher levels than the general control adolescents. Support was obtained for this hypothesis.

Hypothesis four predicted that adolescent substance use would be positively related to adolescent depression and suicide probability. The results of tests for a relationship between substance use and depression and suicide probability were inconclusive. Some group differences emerged with the psychiatric and general control groups. Significant differences resulting in higher levels of depression and suicide probability with drug use by the adolescents. However, higher levels of depression or suicide probability were also reported by the psychiatric adolescents who did not use drugs. Caution is necessary in interpreting these results as very few adolescents reported drug use.

Hypothesis five predicted substance use at the time of the attempt would be positively related to the lethality of a suicide attempt. No adolescent reported substance use at the time of the attempt.

Comparison to Canadian Statistics

Before discussing the research results in relation to the developmental model, the rates of drinking and drug use by this sample first need to be examined within the context of alcohol and drug use by Canadian adolescents. Although more suicidal adolescents reported substance use than either the psychiatric or general control groups, it needs to be determined whether more suicidal adolescents use alcohol and drugs than the Canadian norm. If more suicidal adolescents use alcohol and/or drugs than that reported by adolescents across Canada, there is further support for the role of drug and alcohol use by suicidal adolescents.

According to a national survey in 1985 of adolescents aged 12-19, 72.9% indicated having used alcohol in the past 12 months (Statistics on Alcohol Drug Use, 1988). In this study, 68.8% of the adolescents reported using alcohol, slightly less than the national average. However, when the figures are examined for each group, differences emerge. More of the suicidal adolescents reported alcohol use (86%), fewer of the general controls use alcohol (47.6%), while the psychiatric group reported a similar rate of alcohol use as the national average (73.6%). The lower percentage of adolescents drinking in the general control group may be due to the factor that some are associated with church groups, however the young age of this sample must also be taken into consideration. The fact that more adolescents in the

suicidal group report using alcohol than adolescents in the other samples, and more than the Canadian adolescent population supports the hypothesis of alcohol use by suicidal adolescents.

With respect to drug use, cannabis was the drug most frequently used by Canadian adolescents in 1985 with 18.6% of adolescents aged 12-19 reported using marijuana at least once in the past twelve months (Statistics on Alcohol and Drug Use, 1988). Similar to the Canadian statistics, marijuana was used by the studied adolescents more than any other drug. Results from the study indicate a high rate of drug use by the suicidal adolescents with 88.8% using marijuana at least weekly, and 75% of the psychiatric group using marijuana at least weekly. Only 9.5% of the general control adolescents had tried marijuana. Again the young age of the adolescents (mean of 14 years) may be the reason for low drug use. In comparison to national averages (Statistics on Alcohol and Drug Use, 1988), more suicidal and psychiatric adolescents reported drug and alcohol use.

Research Results in Relation to the Developmental Model

The key results of the study need to be examined within the context of the conceptual model for this research. Within the proposed conceptual model, depression was specified as a precursor to adolescent drug and alcohol use, whereby drugs and alcohol acted as a method of coping with depressive feelings and stress. The results of this study

show that both the suicidal and psychiatric groups are comprised of depressed adolescents. In addition, they are similar on three other factors, failure of a grade, government custody and family structure. As these two groups did not differ on other demographic factors, these three do provide a pile-up of stressors not present for the control group. The group mean scores on the depression scale for the general control group on the other hand fall within the norms for a normal population of adolescents. The adolescents in these families are not subject to such a pile-up of stressors, as the adolescents in the other two groups. Without a pile-up, the adolescent and his/her family may be better able to deal with problems.

The second stage of the model focuses on coping behaviors utilized by adolescents to deal with depression. Alcohol and drug use are viewed by experts as unhealthy coping behaviors. More adolescents in both the suicidal and psychiatric groups reported consuming alcohol than did adolescents in the general control group, however it is unclear as to whether alcohol was used to combat depression, or used for other reasons. The lack of significant differences for drug use by adolescents is surprising. The nonsignificant findings with respect to drug use may be due to two factors: the lack of males in the sample, and the young age of adolescents in this study. Research indicates that males use and abuse drugs more than females (Fowler,

Rich, & Young, 1986; Hawton, Fagg, Marsack, & Wells, 1982; Stanford, Johnson, & Sprott, 1982). These factors should be taken into consideration when examining drug use by adolescents in this study.

The lack of conclusive evidence of a relationship between substance use and either depression or suicide probability is difficult to determine. For the suicidal group, the lack of a relationship between these variables may suggest that alcohol and drugs no longer are effective in masking or alleviating their problems. Substance use may now have become indiscriminant or habitual, irrespective of depressive feelings. For the psychiatric group of adolescents, the significant relationship between no substance use to suicide probability as well as to depression is contrary to the research hypothesis. It may be that these adolescents, who are depressed and/or suicidal, have not yet reached the point in the model where drugs and alcohol are used to cope with these feelings. Alternatively, these adolescents may be utilizing other forms of coping behaviors to deal with their problems. Drug and alcohol use by these adolescents may signal a significant change in their behavior, and therefore indicate potential risk. For all groups, it must be noted that any lack of relationship between the variables may be due to low dependence or abuse as evidenced on both the alcohol and

drug scales. A lack of relationship may also be due to the small number of adolescents studied.

Perceived parental substance use and perceived parental values regarding adolescent substance use were assessed in order to determine the background with which an adolescent may have learned. The adolescent may have learned unhealthy coping behaviors from family, or conversely, may believe that substance use is an acceptable behavior. Or, alcohol use by adolescents may be a more accepted behavior than drug use by adolescents as society generally has a greater disapproval than drug use.

The lack of a significant finding in the tests of parental substance use and adolescent substance use was surprising, as this relationship has previously been found in the literature (McKenry, Tishler, & Kelley, 1983; Thorne & DeBlassie, 1985). However, it must be noted that tests could not be run for both the psychiatric and general control group on adolescent drug use with perceived parental values. All adolescents perceived parental disapproval of drug use. Therefore, it is possible that parental disapproval may play some factor in adolescent drug use in the psychiatric and general control group of adolescents. As well, the large number of adolescents in government care, particularly in the suicidal group, often from a very young age, may have also been a factor for these results. As many of these adolescents had not lived with their parents for

some time, parental use or parental values would not necessarily be known by these adolescents. For this group of adolescents, parental use or values may be an irrelevant factor, whereas peer values and opinions may be more important.

Adolescent perception of parental approval for drug use may not be a predictor of adolescent drug use. Johnston, et al., (1980) conducted a study regarding adolescent substance use and found that nearly all of the adolescents predicted that their parents would not approve of drug use. The adolescents' own ratings of disapproval of drug use by adolescents was significantly less than the rating of disapproval they thought their parents would assign to drug use. It is possible that adolescent attitudes may be a more important determinant of personal behavior than parental attitudes.

The final step in the model leads to suicidal behavior by the adolescent. As expected, the suicidal adolescents reported higher levels of suicidal probability than the other two groups. Results from the scores on the subscales of the suicide probability scale suggest that these adolescents have low self esteem, have greater feelings of hostility, and have little hope regarding their future. The high scores reported by the psychiatric adolescents on the Suicide Probability Scale suggests that some adolescents in this group may also be a high risk for suicidal behavior.

An unexpected finding of the study was the lack of substance use by the suicidal adolescents at the time of the attempt. Numerous studies have found adolescents to have drugs and/or alcohol in their system at the time of hospital admission after a suicide attempt (Hawton, et al., 1982; Thorne & DeBlassie, Berman, & Schwartz, 1990). The findings of this study may again be due to the young age, and the small number of males in the sample.

This research only provides a "snap-shot" of one stage of a possible progression to suicide. Longitudinal studies are necessary to allow for a greater understanding of the adolescent's progression toward suicidal behavior. It can be suggested for future research that the developmental model may still be an effective method to understand suicidal behavior by adolescents. Kandel (1982) examined adolescent drug behaviors from a developmental perspective. In a review of the literature on longitudinal studies of usage patterns, she determined that there are four distinct developmental stages in which initiation into drug use occurs: 1) beer or wine, 2) cigarettes or hard liquor, 3) marijuana, and 4) other illicit drugs. Kandel clarifies that use of drugs at any point does not indicate the adolescent will progress to the next stage. She concludes "only a subgroup at each stage is at risk for progressing to the next stage" (p. 335). It may be that suicidal and some psychiatric adolescents are part of the subgroup of

adolescents that progress to the next stage. Further research is needed to determine characteristics of adolescents that progress to the next stage of drug use.

The relationship of drug use to depression has been well documented (Kandel, 1982; Berman & Schwartz, 1990). It may be possible that as an adolescent attempts to deal with depression unsuccessfully, there is a concurrent progression to increasingly more drug use as suggested by Kandel (1982). The number of suicidal adolescents (n=11) and psychiatric adolescents (n=8), using both alcohol and drugs compared to the general control group of adolescents (n=4) suggests that this developmental progression of drug use may be present in this population. However, it must be noted the adolescents were not questioned regarding alcohol and drug initiation, as well, the present study did not look at progressive use of alcohol and drugs, therefore no firm conclusions can be drawn. More specific information is needed regarding the interplay of alcohol, drugs and depression to provide sufficient support of a developmental model for suicidal behavior.

In summary, the results of this study suggest the suicidal adolescent is a very troubled adolescent, and appears to have few effective coping resources as specified in the conceptual model. It appears there have been numerous problems and/or disrupting events in the life of the adolescent that may have been ongoing for many years.

Many of these adolescents have experienced a parental separation and/or have experienced disruption in their homelife due to government intervention. As well, many of these adolescents experienced problems in school. The majority failed a grade and many were experiencing problems at the time of their suicide attempt, often failing their present grade. These adolescents are also very depressed, and do use alcohol, and to some degree drugs. Although it is unknown if these adolescents resorted to alcohol and drugs to cope with depression, the presence of use suggests that these adolescents may be utilizing unhealthy coping behaviors. As well, it is unknown if these adolescents utilized other forms of coping behaviors, either healthy or unhealthy. It is possible that healthy coping behaviors had been utilized, but were not effective, or conversely, it may be possible that these adolescents do not use other coping mechanisms.

However, unlike the relationships proposed in the conceptual model, these adolescents have not consumed alcohol or drugs at the time of the suicide attempt. It may be possible that the progress to suicidal behavior is cyclical if no changes result from a suicide attempt. Depression and drug and alcohol use may increase with the possibility that drugs and/or alcohol are present in future suicidal behaviors.

The psychiatric group of adolescents are also very

troubled adolescents, five of them have already resorted to suicidal behavior. These adolescents are also depressed, although not as depressed as the suicidal adolescents. They adolescents have also used alcohol to some degree, although again it is unknown whether substance use was specifically a coping mechanism or not.

It was interesting to note that there were few differences between the suicidal group of adolescents and the psychiatric controls, specifically in regards to demographics (grade failure, government custody, and family structure). The first possible explanation is the psychiatric control group is not representative of the adolescent population. However, the prevalence of family disruptions and problems in school has been discussed previously in suicide literature, therefore differences between the groups could be expected. The question still remains regarding the rate of these problems within a normal population. The second explanation, is that the suicidal and psychiatric groups may be very similar, and the psychiatric group is therefore a high risk for future suicidal behaviors. However, although there are similar factors in both groups, the suicidal and psychiatric adolescents have exhibited two different responses to a crisis, and therefore possibly two different ways of coping. These groups need to be examined further.

The possibility exists that the adolescents admitted to

hospital for psychiatric treatment may have been diagnosed or in the treatment 'net' at an earlier stage in the model. Both the suicidal and psychiatric adolescents reported high levels of depression on the Child Depression Inventory. However, many of the psychiatric adolescents had been admitted to hospital due to depression. It is unknown whether the suicidal adolescents had been depressed for any length of time previously. It is possible that some were identified by various members of the social network surrounding the adolescents as needing help. Those adolescents who were not identified may have continued on to suicidal behavior.

Implications for Practice

Several implications for practice, including mental health promotion, prevention, crisis intervention and treatment need to be addressed. The focus should not only be on diagnosis and treatment but on education as well. Adolescents may need to be taught more effective coping mechanisms and problem solving skills to prepare them for the many stressors in their lives. Also, the adolescents need to be taught effective coping strategies to live a positive life.

Secondly, although many adolescents are identified as needing some form of treatment or help, we as practitioners need to respond more effectively to troubled adolescents. It may also be that caregivers need training as to the

recognition of depression in children and adolescents, and training for treatment. It appears that aid could be given to adolescents before the need for serious psychiatric intervention arises if appropriate clues are identified. With psychiatric intervention, not only should drug and alcohol use be assessed, but use of other coping methods, including depression, and acting out behaviors by the adolescent need to be examined. The multidimensional aspects of stressors which are perceived present by the adolescent needs to be specifically addressed as well as methods they have used to cope.

Limitations of the Study

One of the major limitations of the study was the inability to match the adolescents according to socioeconomic status. Socioeconomic status may affect the family whereby economic concerns could exacerbate any on-going problems. Socioeconomic status may also affect a family's ability to get help, or limits the places where they might go for help. Because it was not possible to statistically control socioeconomic status, it is difficult to determine whether results are due to socioeconomic differences. The majority of cases where socioeconomic status was difficult to determine were adolescents under government custody. Due to the large number of adolescents in the suicidal and psychiatric group under government care and the effects this has on a child, it could be suggested

that this group of adolescents should be studied separately. They may have from different characteristics from other adolescents who exhibit psychiatric or suicidal behavior. Such information could aid child welfare authorities in the care of children and adolescents under government custody.

Another possible limitation to this study was the inclusion of five adolescents in the psychiatric group who had previously attempted suicide. It is possible that these adolescents may confound the results of the psychiatric group, and should be studied separately. These adolescents may have resorted to behaviors that other adolescents diagnosed with psychopathology would not.

A third limitation of the study is the small sample size. Larger numbers of adolescents in each group are necessary to confirm the results of this study. The small sample size also limits the generalizability of the results to the larger population of adolescents, as this may not be a representative sample of adolescents. Additionally, some of the results are based on correlational statistics so causal relationships cannot be determined.

Finally, the sampling method may limit the results of this study. The general control group of adolescents consisted of a number of adolescents with church affiliation. The question may arise as to the representativeness of this group, in that it may over represent adolescents who attend church which may bias the

results. However, it could be argued that adolescents obtained from various clubs or organizations within the community may also produce biased results. Also, as the researcher was known to some of the general control adolescents, and not known to members of the other groups it is possible that their answers were not truthful, particularly in terms of drug and alcohol use, even though the adolescents understood that their answers were strictly confidential.

Future Research

Further research on adolescent substance use is necessary to clarify the relationship of the variables to suicidal behavior by adolescents. The results of this study suggest that young adolescents who are suicidal may not experiment much or become dependent on drugs or alcohol. Therefore, further research could be conducted based on this finding in two different areas. If young adolescents do not use significant amounts of drugs, this cannot be a differentiating factor for suicidal behavior. Factors other than alcohol use need to be identified to detail an adolescents' progression to suicidal behavior. Research also needs to be conducted to determine at what point an adolescent turns to alcohol and/or drugs as a coping mechanism. Second, research utilizing the developmental model could be conducted with older adolescents to further assess the role of drugs and alcohol. Finally, longitudinal

studies of adolescents addressing drug and alcohol use, depression, and suicidal behaviors, need to be conducted before there can be firm support for the entire developmental model.

More information is needed that focuses on the initiation of alcohol and drug use and how this relates to the development of depression, hopelessness, suicidal ideation, and finally suicidal behavior. Qualitative research could also be conducted looking at adolescent coping abilities, self esteem and stressors to determine an adolescent's breaking point at which drug use occurs. The developmental patterns of alcohol use, and how alcohol is used as a coping mechanism, and the adolescents' coping behaviors as a reaction to stress needs to be studied further. Although research has been conducted on adolescent drug use initiation (Berman, & Schwartz, 1990; Kandel, 1982; Smith, 1986), further research needs to focus on the circumstances surrounding the initiation of alcohol and drug use and the progression to using illegal drugs.

More effective measures of adolescent alcohol and drug use also need to be developed. It is possible that the measures used in this study did not adequately address the factors associated with adolescent alcohol and drug use, therefore the low scores on the scale. More precise drug and alcohol measures will aid in the understanding of alcohol and drug use by adolescents.

The high number of adolescents under government care who are suicidal, or have been diagnosed with psychopathology suggests this group needs to be further examined. The effects of government care, and the circumstances surrounding the need for government intervention are not clearly understood. As indicated previously, this may be a subgroup of suicidal adolescents, with different characteristics, therefore need to be studied on their own.

Finally, research on adolescent drug and alcohol use needs to be conducted with a much broader sample of adolescents. According to Smith and Crawford (1986), based on a sample of 313 high school students, suicide is a serious concern for 1 out of 4 students. They found that from 1 out of 8 to 1 out of 12 of these students had previously made a suicide attempt, and concluded that "if we wish to be of help to troubled adolescents, we need not target our efforts solely at the seriously suicidal young persons; it seems most high school students may need our attention" (p. 324). As the present research has noted greater levels of alcohol and drug use by suicidal adolescents, research on adolescents within a normal population, to differentiate those who use more drugs and alcohol may allow for earlier detection of problems before the occurrence of suicidal behavior.

Summary

The main goal of this research project was to gain a greater understanding of drug and alcohol use by adolescents, specifically those who engaged in suicidal behavior. As well, further insights into the relationship of drug and alcohol use to depression and suicidal behavior was hoped to be achieved. Previous research (Tishler, et al., 1982; Headlam, et al. 1981) has noted the prevalence of drugs and alcohol by suicidal adolescents. This research suggests that suicidal adolescents may be more dependent on alcohol and later use of drugs to a greater degree than the psychiatric and general control adolescents. Low reported drug use in this sample was probably due to the young age of the sample and small sample size, but it is important to note the results did approach significance.

Some support was given to factors specified in the developmental model suggesting a progression by adolescents to suicidal behavior. There appears to be a connection between depression and substance use, with alcohol and drugs used to cope with the depression. The role of alcohol may not be as significant a factor in the progression to suicidal behavior. Rather, the instigation of drug use may be a more explicit differentiating factor between adolescents who resort to suicidal behavior. Further research is needed on adolescent substance use, the effects of parental substance use and suicidal behavior within the general population of adolescents.

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APPENDICES

APPENDIX I

DIAGNOSTIC CRITERIA FOR DSM III

DEPRESSION

Criteria for Depression (DSM-III) (p. 213-214)

A. Dysphoric mood or loss of interest or pleasure in all or almost usual activities and pastimes. The mood disturbance must be prominent and relatively persistent...

B. At least four of the following symptoms have each been present nearly every day for a period of at least two weeks:

1. Poor appetite or significant weight loss (when not dieting) or increased appetite or significance weight gain...
2. Insomnia or hypersomnia.
3. Psychomotor agitation or retardation.
4. Loss of interest or pleasure in usual activities.
5. Loss of energy; fatigue.
6. Feelings of worthlessness, self-reproach, or excessive or inappropriate guilt (either mayy be delusional).
7. Complaints or evidence of diminished ability to think to concentrate.
8. Recurrent thoughts of death, suicidal ideation, wishes to be dead, or suicide attempts.

APPENDIX II

THE CHILD DEPRESSION INVENTORY

CD INVENTORY

KIDS SOMETIMES HAVE DIFFERENT FEELINGS AND IDEAS.

THIS FORM LISTS THE FEELINGS AND IDEAS IN GROUPS. FROM EACH GROUP, PICK ONE SENTENCE THAT DESCRIBES YOU BEST FOR THE PAST TWO WEEKS.

AFTER YOU PICK A SENTENCE FROM THE FIRST GROUP, GO ON TO THE NEXT GROUP.

THERE IS NO RIGHT ANSWER OR WRONG ANSWER. JUST PICK THE SENTENCE THAT BEST DESCRIBES THE WAY YOU HAVE BEEN RECENTLY. PUT A MARK LIKE THIS X NEXT TO YOUR ANSWER. PUT THE MARK IN THE BOX NEXT TO THE SENTENCE THAT YOU PICK.

HERE IS AN EXAMPLE OF HOW THIS FORM WORKS. TRY IT. PUT A MARK NEXT TO THE SENTENCE THAT DESCRIBES YOU BEST.

EXAMPLE:

- ☐ I READ BOOKS ALL THE TIME
- ☐ I READ BOOKS ONCE IN A WHILE
- ☐ I NEVER READ BOOKS

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Version: [illegible] with format changes 9-[illegible]

REMEMBER, PICK OUT THE SENTENCES THAT DESCRIBE YOUR FEELINGS AND IDEAS IN THE PAST TWO WEEKS.

1. ☐ I AM SAD ONCE IN A WHILE
   ☐ I AM SAD MANY TIMES
   ☐ I AM SAD ALL THE TIME

2. ☐ NOTHING WILL EVER WORK OUT FOR ME
   ☐ I AM NOT SURE IF THINGS WILL WORK OUT FOR ME
   ☐ THINGS WILL WORK OUT FOR ME O.K.

3. ☐ I DO MOST THINGS O.K.
   ☐ I DO MANY THINGS WRONG
   ☐ I DO EVERYTHING WRONG

4. ☐ I HAVE FUN IN MANY THINGS
   ☐ I HAVE FUN IN SOME THINGS
   ☐ NOTHING IS FUN AT ALL

5. ☐ I AM BAD ALL THE TIME
   ☐ I AM BAD MANY TIMES
   ☐ I AM BAD ONCE IN A WHILE

6. ☐ I THINK ABOUT BAD THINGS HAPPENING TO ME ONCE IN A WHILE
   ☐ I WORRY THAT BAD THINGS WILL HAPPEN TO ME
   ☐ I AM SURE THAT TERRIBLE THINGS WILL HAPPEN TO ME

7. ☐ I HATE MYSELF
   ☐ I DO NOT LIKE MYSELF
   ☐ I LIKE MYSELF

8. ___ ALL BAD THINGS ARE MY FAULT
___ MANY BAD THINGS ARE MY FAULT
___ BAD THINGS ARE NOT USUALLY MY FAULT

9. ___ I DO NOT THINK ABOUT KILLING MYSELF
___ I THINK ABOUT KILLING MYSELF BUT I WOULD NOT DO IT
___ I WANT TO KILL MYSELF

10. ___ I FEEL LIKE CRYING EVERYDAY
___ I FEEL LIKE CRYING MANY DAYS
___ I FEEL LIKE CRYING ONCE IN A WHILE

11. ___ THINGS BOTHER ME ALL THE TIME
___ THINGS BOTHER ME MANY TIMES
___ THINGS BOTHER ME ONCE IN A WHILE

12. ___ I LIKE BEING WITH PEOPLE
___ I DO NOT LIKE BEING WITH PEOPLE MANY TIMES
___ I DO NOT WANT TO BE WITH PEOPLE AT ALL

13. ___ I CANNOT MAKE UP MY MIND ABOUT THINGS
___ IT IS HARD TO MAKE UP MY MIND ABOUT THINGS
___ I MAKE UP MY MIND ABOUT THINGS EASILY

14. ___ I LOOK O.K.
___ THERE ARE SOME BAD THINGS ABOUT MY LOOKS
___ I LOOK UGLY

15. ___ I HAVE TO PUSH MYSELF ALL THE TIME TO DO MY SCHOOLWORK
___ I HAVE TO PUSH MYSELF MANY TIMES TO DO MY SCHOOLWORK
___ DOING SCHOOLWORK IS NOT A BIG PROBLEM

REMEMBER, DESCRIBE HOW YOU HAVE BEEN IN THE PAST TWO WEEKS.

16. ☐ I HAVE TROUBLE SLEEPING EVERY NIGHT
☐ I HAVE TROUBLE SLEEPING MANY NIGHTS
☐ I SLEEP PRETTY WELL

17. ☐ I AM TIRED ONCE IN A WHILE
☐ I AM TIRED MANY DAYS
☐ I AM TIRED ALL THE TIME

18. ☐ MOST DAYS I DO NOT FEEL LIKE EATING
☐ MANY DAYS I DO NOT FEEL LIKE EATING
☐ I EAT PRETTY WELL

19. ☐ I DO NOT WORRY ABOUT ACHES AND PAINS
☐ I WORRY ABOUT ACHES AND PAINS MANY TIMES
☐ I WORRY ABOUT ACHES AND PAINS ALL THE TIME

20. ☐ I DO NOT FEEL ALONE
☐ I FEEL ALONE MANY TIMES
☐ I FEEL ALONE ALL THE TIME

21. ☐ I NEVER HAVE FUN AT SCHOOL
☐ I HAVE FUN AT SCHOOL ONLY ONCE IN A WHILE
☐ I HAVE FUN AT SCHOOL MANY TIMES

22. ☐ I HAVE PLENTY OF FRIENDS
☐ I HAVE SOME FRIENDS BUT I WISH I HAD MORE
☐ I DO NOT HAVE ANY FRIENDS

23. ☐ MY SCHOOL WORK IS ALRIGHT
☐ MY SCHOOLWORK IS NOT AS GOOD AS BEFORE
☐ I DO VERY BADLY IN SUBJECTS I USED TO BE GOOD IN

24. ☐ I CAN NEVER BE AS GOOD AS OTHER KIDS
☐ I CAN BE AS GOOD AS OTHER KIDS IF I WANT TO
☐ I AM JUST AS GOOD AS OTHER KIDS

25. ☐ NOBODY REALLY LOVES ME
☐ I AM NOT SURE IF ANYBODY LOVES ME
☐ I AM SURE THAT SOMEBODY LOVES ME

26. ☐ I USUALLY DO WHAT I AM TOLD
☐ I DO NOT DO WHAT I AM TOLD MOST TIMES
☐ I NEVER DO WHAT I AM TOLD

27. ☐ I GET ALONG WITH PEOPLE
☐ I GET INTO FIGHTS MANY TIMES
☐ I GET INTO FIGHTS ALL THE TIME

THE END

THANK YOU FOR FILLING OUT THIS FORM

SUM: _____

ADMINISTRATION: 0. INDIVIDUAL
1. GROUP

APPENDIX III

THE ALCOHOL DEPENDENCE SCALE

ALCOHOL DEPENDENCE SCALE

The questions in this booklet are about your use of alcohol during the past 12 months.

INSTRUCTIONS

1. Carefully read each question and the possible answers provided. Answer each question by circling the ONE choice that is most true to you.

2. The word "drinking" in a question refers to "drinking of alcoholic beverages".

3. Take as much time as you need. Work carefully, and try to finish as soon as possible. Please answer ALL questions.

If you have difficulty with a question or have any problems, please ask the questionnaire administrator.

In the past 12 months, have you consumed any alcohol?

a. Yes
b. No

If not, please turn to question number 31.

Adapted
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These question refer to the past 12 months.

1. How old were you the first time you drank alochol?

   _____ years

2. When was the last time you drank alcohol?

   a. Within the last two weeks
   b. Within the last month
   c. Within the last 6 months
   d. Within the last year

3. The last time you drank were you:

   a. Alone
   b. With parents (family)
   c. With small group of friends
   d. At a party

4. How were you feeling the last time you drank?

   a. Happy
   b. Sad
   c. Depressed
   d. Other _____

5. How much did you drink the last time you drank?

   a. Enough to get high or less
   b. Enough to get drunk
   c. Enough to pass out

6. How often do you drink?

   a. Once a week
   b. Once a month
   c. Once every couple months
   d. Once a year

7. Do you often have hangovers on Sunday or Monday mornings?

   a. No
   b. Yes

8. Have you had "shakes" when sobering up (hands tremble, shake inside) as a result of drinking?

   a. No ____
   b. Yes, sometimes
   c. Yes, almost every time I drink

9. Do you get physically sick, (e.g. vomit, stomach cramps) as a result of drinking?

   a. No
   b. Yes
   c. Almost every time I drink

10. As a result of drinking, have you ever had delirium tremens or DT's (seen, felt or heard things not really there)?

   a. No
   b. Yes, once
   c. Several times

11. When you drink, do you stumble about, stagger and weave?

   a. No
   b. Sometimes
   c. Often

12. As a result of drinking have you felt overly hot and sweaty (feverish)?

   a. No
   b. Yes, once
   c. Yes, several times

13. As a result of drinking, have you seen things that were not there?

   a. No
   b. Yes, once
   c. Yes, several times

14. Do you panic because you fear you may not have a drink when you need it?

   a. No
   b. Yes

15. Have you had blackouts ("loss of memory" without passing out) as a result of drinking?

   a. No, never
   b. Sometimes
   c. Often
   d. Almost every time I drink

16. Do you carry a bottle with you or keep one close at hand?

    a. No
    b. Some of the time
    c. Most of the time

17. After a period of abstinence (not drinking) do you end up drinking heavily again?

    a. No
    b. Sometimes
    c. Almost every time

18. Have you passed out as a result of drinking?

    a. No
    b. Once last year
    c. Twice or more last year

19. Have you had a convulsion (fit) following a period of drinking?

    a. No
    b. Once
    c. Several times

20. Do you drink throughout the day?

    a. No
    b. Yes

21. As a result of being drunk, has your thinking been fuzzy or unclear?

    a. No
    b. Yes, but only for a few hours
    c. Yes, for one or two days
    d. Yes, for many days

22. As a result of drinking have you felt your heart beating rapidly?

    a. No
    b. Yes, once
    c. Yes, several times

23. Do you almost constantly think about drinking and alcohol?

    a. No
    b. Yes

24. As a result of drinking have you heard "things" that were not there?

a. No
b. Yes
c. Yes, several times

25. Have you had weird and frightening sensations when drinking?

a. No
b. Yes, perhaps once or twice
c. Yes, often

26. As a result of drinking have you "felt things" crawling on you that were not there (e.g., bugs, spiders)?

a. No
b. Once
c. Several times

27. With respect to blackouts (loss of memory):

a. Have never had a blackout
b. Have had blackouts that last less than an hour
c. Have had blackouts that last for several hours
d. Have had blackouts that last for a day or more

28. Have you tried to cut down on your drinking and failed?

a. No
b. Once
c. Several times

29. Do you gulp drinks (drink quickly)?

a. No
b. Yes

30. After taking one or two drinks, can you usually stop?

a. Yes
b. No

31. Do you think that your father (or person who served as your father in raising you) ever takes a drink of beer, wine, or liquor?

a. No
b. Yes, sometimes
c. Yes, fairly regularly
d. I don't know

32. Do you think that your mother (or person who served as your mother in raising you) ever takes a drink of beer, wine or liquor?

a. No
b. Yes, sometimes
c. Yes, fairly regularly
d. I don't know

33. How do you think your parents (or your family) feel about boys your age drinking?

a. Strongly disapprove
b. Disapprove
c. Don't care one way or the other
d. Approve
e. Strongly approve
f. I don't know

34. How do you think your parents (or your family) feel about girls your age drinking?

a. Strongly disapprove
b. Disapprove
c. Don't care one way or the other
d. Approve
e. Strongly approve
f. I don't know

APPENDIX IV

THE DRUG ABUSE SCALE

DRUG ABUSE SCALE*

The following questions concern information about your potential involvement with drugs not including alcoholic beverages during the past 12 months. Carefully read each statement and decide if you answer is "Yes" or "No". Then circle the appropriate response beside the question.

In the statement "drug abuse" refers to (1) the use of prescribed or over the counter drugs in excess of the directions and (2) any non-medical use of drugs. The various classes of drugs may include: cannabis (e.g. marijuana, hash), solvents, tranquilizers (e.g. valium), barbituates, cocaine, stimulants (e.g. speed), hallucinogens (e.g. LSD) or narcotics (e.g. heroin). Remember that the question do not include alcoholic beverages.

Please answer every question. If you have difficulty with a statement, then choose the response that is mostly right.

*Adapted
Copyright 1982 by the Addiction Research Foundation.
Author: Harvey A. Skinner Ph.D.

The questions in this section ask you to identify yourself - **NOT BY NAME** - but by age, grade level, family background, etc.

Mark X by your best answer to each question or each part of a question.

1. In what month were you born? _____

2. What year were you born? _____

3. Are you:

   ____ Male ____ Female?

4. What grade are you in?

   ___ 7th ___ 8th ___ 9th ___ 10th ___ 11th ___ 12th

   ___ Dropped out of school

   ___ Other, please explain _____

5. Please tell us if your family situation has changed in a major way during the <u>past four years</u>. Please mark X for each statement that describes something that happened to you. Indicate the number of years and/or months ago this happened.

____ Parents became separated or divorced ___ years and/or ___ months ago.

____ Your father remarried ___ years and/or ___ months ago.

____ Your mother remarried ___ years and/or ___ months ago.

____ You got married ___ years and/or ___ months ago.

____ Your father died ___ years and/or ___ months ago.

____ Your mother died ___ years and/or ___ months ago.

____ Your brother died ___ years and/or ___ months ago.

____ Your sister died ___ years and/or ___ months ago.

____ Someone else close to you died ___ years and/or months ago. Would you please tell us how this person was related to you (aunt, uncle, etc.)

_____

____ None of the above has happened to me during the past four years.

6. How much education do your parents have? Mark X on one blank line for the column headed "Father" and mark X on one blank line for the column headed "Mother".

Father	Mother	
____	____	Did not complete the 9th grade.
____	____	Completed the 9th grade but did not go to high school.
____	____	Went to high school but did not graduate.
____	____	Graduated from high school.
____	____	Some university or special training after high school.
____	____	Graduated from university.
____	____	Some education after university, like graduate school, a master's degree, doctor's degree, medical school, law school, etc.
____	____	I don't know.

7. Please read the groups of occupation listed below very carefully. Though none of these descriptions may exactly describe what your parent does for a living, pick the <u>one</u> group that is the best answer.

   Mark X on one blank line that best describes your father's work under the column headed "Father" and then mark X on one blank line that best describes your mother's work under the column headed "Mother". If your mother works outside the home 20 hours a week or more, place her in one of the paid-job categories only.

Father	Mother	
____	____	APPRENTICE: apprentice bricklayer, mechanic, plumber.
____	____	CLERICAL: bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent.
____	____	CRAFTSMEN: baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter.
____	____	FARMER, FARM MANAGER
____	____	HOME MAKER OR HOUSEWIFE
____	____	LABORER: car washer, lumberman, sanitation worker.
____	____	MANAGER, ADMINISTRATOR: sales manager, office manager, school administrator, buyer, restaurant manager, government official.
____	____	MILITARY: career officer, enlisted man or woman in the armed forces.
____	____	OPERATIVE: meat cutter, assembler, machine operator, welder, taxicab, bus, or truck driver, gas station attendant.
____	____	PROFESSIONAL: accountant, artist, clergyman, dentist, physician, registered nurse, engineer, lawyer, librarian, teacher, writer, scientist, social worker, actor, actress.
____	____	PROPRIETOR OR OWNER: owner of small business, contractor, restaurant owner.

____ ____ PROTECTIVE SERVICE: detective, policeman or guard, sheriff, fireman.

____ ____ SALES: saleman, sales clerk, advertising or insurance agent, real estate broker.

____ ____ SERVICE: barber, beautician, practical nurse, private household worker, janitor, waiter.

____ ____ TECHNICAL: draftsman, medical or dental technician, computer programmer.

____ ____ UNEMPLOYED

____ ____ I DON'T KNOW

____ ____ OTHER (please explain) _____

_____

The following questions refer to the past 12 months.

Circle your response.

1. Have you used drugs other than those require for medical reasons?

   Yes No

2. Have you abused prescription drugs?

   Yes No

If **NO** to both of the above quesitons, please turn to question #24.

3. When was the last time you used drugs?

   a. Within the last two weeks
   b. Within the last month
   c. Within the last 6 months
   d. Within the last year

4. The last time you used drugs were you:

   a. Alone
   b. With a few friends
   c. With parents (family)
   d. At a party

5. How were you feeling the last time you used drugs?

   a. Happy
   b. Sad
   c. Depressed
   d. Other _____

6. Do you abuse more than one drug at a time?

   Yes No

7. Can you get through the week without using drugs?

   Yes No

8. Are you always able to stop using drugs when you want to?

   Yes No

9. Have you had "blackouts" or "flashbacks" as a result of drug use?

   Yes No

10. Do you feel bad or guilty about your drug use?

    Yes No

11. Does your parent ever complain about your involvement with drugs?

    Yes No

12. Has drug abuse created problems between you and your parents?

    Yes No

13. Have you lost friends because of your use of drugs?

    Yes No

14. Have your neglected your family because of your use of drugs?

    Yes No

15. Have you been in trouble at school because of drug abuse?

    Yes No

16. Have you lost a job because of drug abuse?

    Yes No

17. Have you gotten into fights when under the influence of drugs?

    Yes No

18. Have you engaged in illegal activities in order to obtain drugs?

Yes No

19. Have you been arrested for possession of illegal drugs?

Yes No

20. Have you ever experience withdrawl symptoms (felt sick) when you stopped taking drugs?

Yes No

21. Have you had medical problems as a result of your drug use (e.g. memory loss, hepatitis, convulsions, bleeding, etc.)?

Yes No

22. Have you gone to anyone for help for a drug problem?

Yes No

23. Have you been involved in a treatment program specifically related to drug use?

Yes No

24. Do you think your father (or the person who served as your father in raising you) ever uses non prescription drugs?

a. No
b. Yes, sometimes
c. Yes, fairly regularly
d. I don't know

25. Do you think that your mother (or person who served as your mother in raising you) ever uses non prescription drugs?

a. No
b. Yes, sometimes
c. Yes, fairly regularly
d. I don't know

26. How do you think your parents (or your family) feel about boys your age using drugs?

    a. Strongly disapprove
    b. Disapprove
    c. Don't care one way or the other
    d. Approve
    e. Strongly approve
    f. I don't know

27. How do you think your parents (or your family) feel about girls your age using drugs?

    a. Strongly disapprove
    b. Disapprove
    c. Don't care one way or the other
    d. Approve
    e. Strongly approve
    f. I don't know

Please answer these questions about the following drugs listed in the table. Cannabis refers to marijuana, hash, oil, etc. Chemicals refer to LSD. T & R's refers to talwin and ritalin. Prescription drugs refer to any medications obtained through a physican.

	CANNABIS	CHEMICALS	TALWIN/ RIT	PRESCRIPTION DRUGS
Age first used?	___ (yr)	___ (yr)	___ (yr)	___ (yr)
How often?				
a) daily				
b) weekly				
c) occasional				
d) have tried				
e) never				
Last time used was within?				
a) last week				
b) last month				
c) last 6 mths.				
d) last year				

Please answer the same questions about the drugs listed in the following table. Cocaine refers to coke and crack, solvents include glue sniffing, gasoline sniffing, etc.

	COCAINE	SOLVENTS
Age first used?	___ (yr)	___ (yr)
How often?		
a) daily	_____	_____
b) weekly	_____	_____
c) occasional	_____	_____
d) have tried	_____	_____
e) never	_____	_____
Last time used was within?		
a) last week	_____	_____
b) last month	_____	_____
c) last 6 mths.	_____	_____
d) last year	_____	_____
e) over 1 year	_____	_____

APPENDIX V

THE SUICIDE PROBABILITY SCALE

SPS

Rating Form

John G. Cull, Ph.D. and Wayne S. Gill, Ph.D

Published by
wps

DIRECTIONS

Listed below are a series of statements that some people might use to describe their feelings and behaviors. Please read each statement and determine how often the statement is true for you. Then circle the letter T in the appropriate box to indicate how often you feel the statement applies to you.

Be sure to rate every item. When you are through, return the completed rating form to the person who gave it to you.

Example:

	None or a little of the time	Some of the time	Good part of the time	Most or all of the time
1. I feel anxious	T	(T)	T	T

	None or a little of the time	Some of the time	Good part of the time	Most or all of the time
1. When I get mad I throw things.	T	T	T	T
2. I feel many people care for me deeply.	T	T	T	T
3. I feel I tend to be impulsive.	T	T	T	T
4. I think of things too bad to share with others.	T	T	T	T
5. I think I have too much responsibility.	T	T	T	T
6. I feel there is much I can do which is worthwhile.	T	T	T	T
7. In order to punish others I think of suicide.	T	T	T	T
8. I feel hostile toward others.	T	T	T	T
9. I feel isolated from people.	T	T	T	T
10. I feel people appreciate the real me.	T	T	T	T
11. I feel many people will be sorry if I die.	T	T	T	T
12. I feel so lonely I cannot stand it.	T	T	T	T
13. Others feel hostile toward me.	T	T	T	T
14. I feel, if I could start over, I would make many changes in my life.	T	T	T	T
15. I feel I am not able to do many things well.	T	T	T	T
16. I have trouble finding and keeping a job I like.	T	T	T	T
17. I think that no one will miss me when I am gone.	T	T	T	T
18. Things seem to go well for me.	T	T	T	T
19. I feel people expect too much of me.	T	T	T	T
20. I feel I need to punish myself for things I have done and thought.	T	T	T	T
21. I feel the world is not worth continuing to live in.	T	T	T	T
22. I plan for the future very carefully.	T	T	T	T
23. I feel I don't have many friends I can count on.	T	T	T	T
24. I feel people would be better off if I were dead.	T	T	T	T
25. I feel it would be less painful to die than to keep living the way things are.	T	T	T	T
26. I feel/felt close to my mother.	T	T	T	T
27. I feel/felt close to my mate.	T	T	T	T
28. I feel hopeless that things will get better.	T	T	T	T
29. I feel people do not approve of me or what I do.	T	T	T	T
30. I have thought of how to do myself in.	T	T	T	T
31. I worry about money.	T	T	T	T
32. I think of suicide.	T	T	T	T
33. I feel tired and listless.	T	T	T	T
34. When I get mad I break things.	T	T	T	T
35. I feel/felt close to my father.	T	T	T	T
36. I feel I can't be happy no matter where I am.	T	T	T	T

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WESTERN PSYCHOLOGICAL SERVICES

APPENDIX VI

INTERVIEW QUESTIONS FOR SUICIDAL ADOLESCENTS

INTERVIEW QUESTIONS FOR SUICIDAL ADOLESCENTS

1. Can you tell me the events that led up to your actions (e.g. overdose)?
2. Was anyone else around?
3. Do you remember what you were thinking at the time?
4. What did you do?
5. Why did you want to harm yourself?
6. Did you consume any alcohol or drugs just prior to, or at the time of your suicide attempt?
7. Did you want to die?
8. Have you ever engaged in self-harming behavior before?

APPENDIX VII

CONSENT LETTER FOR SUICIDAL AND PSYCHIATRIC ADOLESCENTS

FACTORS ASSOCIATED WITH ADOLESCENT COPING BEHAVIOURS

Thank you for agreeing to participate in this study of adolescent coping behaviours.

The purpose of this study is to determine how you and other adolescents cope with depression, stress, and other unhappy events in your lives. To do this we will be examining how adolescents try to deal with feelings of depression, hopelessness, and to determine if self harming thoughts or behaviours such as drug and/or alcohol use or suicidal thoughts are a common feature in times of stress. We also want to examine factors that protect adolescents from engaging in self harming behaviours.

All that you are required to do is to complete four questionnaires. This will take approximately 1/2 hour. These questionnaires have been used across North America, Britain, and Europe and cover such topics as problems solving, coping skills and depression, drug and alcohol use, attitudes towards suicide and perception of parental attitudes of adolescent drug and alcohol use. We will also be including information obtained from your medical records.

You are assured that all of the information will remain completely confidential. You will not be required to put your name on any of the forms. You are also assured that although your parent (guardian) must also sign a consent form, they will not receive any information regarding the completed questionnaires.

Again thank you for participating in this study. We appreciate your help, as the answers that you and other young people provide will help us to better understand how adolescents feel at times of stress, how adolescents deal with stress, and what types of programs can be developed for those in need.

If you have any questions or concerns, please do not hesitate to call.

Ms. Kim Adria
435-2462

Dr. Maurice Blackman
Director, Child Psychiatry
University of Alberta Hospitals
492-6569

ADOLESCENT CONSENT:

I acknowledge that the research procedures described on the information sheet attached and of which I have a copy have been explained to me, and that any questions that I have asked have been answered to my satisfaction. In addition,, I know that I may contact the person designated on this form, if I have further questions either now or in the future. I have been assured that personal records relating to this study will be kept confidential. I understand that I am free to withdraw from the study at any time without jeopardy to my continuing medical care. I further understand that if the study is not undertaken, or if it is discontinued at any time, the quality of my medical care will not be affected. I understand that if any knowledge gained from the study is forthcoming that could influence my decision to continue this study, I will be promptly informed. I also allow information to be obtained from my medical records.

_____ _____

(name) (name of witness)

_____ _____

(signature) (signature of witness)

_____

(signature of investigator or designee)

The persons who may be contacted about the research are:

Ms. Kim Adria
436-2462

Dr. Maurice Blackman
Director, Child Psychiatry,
University of Alberta Hospitals
492-5659

APPENDIX VIII

CONSENT LETTER FOR PARENTS OF SUICIDAL AND PSYCHIATRIC ADOLESCENTS

FACTORS ASSOCIATED WITH ADOLESCENT COPING BEHAVIOURS

I am engaged in a study of adolescence looking specifically at coping behaviours used by adolescents to deal with stress in their lives.

The purpose of this study is to determine how adolescents cope with depression, stress, and other unhappy events in their lives. To do this we will be examining how adolescents try to deal with feelings of depression, hopelessness, and to determine if self harming thoughts or behaviours such as drug and/or alcohol use or suicidal thoughts are a common feature in times of stress. We also want to examine factors that protect adolescents from engaging in self harming behaviours.

Your permission is required for your child's participation in this study. Your child will be required to complete four questionnaires. This will take approximately 1/2 hour. We will also be including information obtained from medical records. These questionnaires have been used across North America, Britain, and Europe and cover such topics as problems solving, coping skills and depression, drug and alcohol use, attitudes towards suicide and perception of parental attitudes of adolescent drug and alcohol use.

You can be assured that all of the information will remain completely <u>confidential</u>. Your child will not be required to put his/her name on any of the forms. You also understand that although you must also sign a consent form, you may not see the completed questionnaires.

Again thank you for participating in this study. We appreciate your child's help, as the answers that he/she and other young people provide will help us to better understand how adolescents feel at times of stress, how adolescents deal with stress, and what types of programs can be developed for those in need.

If you have any questions or concerns, please do not hesitate to call.

Ms. Kim Adria
435-2462

Dr. Maurice Blackman
Director, Child Psychiatry
University of Alberta Hospitals
492-6569

PARENTAL CONSENT:

I acknowledge that the research procedures described on the information sheet attached and of which I have a copy have been explained to me, and that any questions that I have asked have been answered to my satisfaction. In addition,, I know that I may contact the person designated on this form, if I have further questions either now or in the future. I have been assured that personal records relating to this study will be kept confidential. I understand that my child is free to withdraw from the study at any time without jeopardy to his/her continuing medical care. I further understand that if the study is not undertaken, or if it is discontinued at any time, the quality of his/her medical care will not be affected. I understand that if any knowledge gained from the study is forthcoming that could influence my decision to allow my child to continue this study, I will be promptly informed. I also allow information to be obtained from my child's medical records.

_____ _____

(name) (name of witness)

_____ _____

(signature) (signature of witness)

_____

(signature of investigator or designee)

The persons who may be contacted about the research are:

Ms. Kim Adria
436-2462

Dr. Maurice Blackman
Director, Child Psychiatry,
University of Alberta Hospitals
492-5659

APPENDIX IX

CONSENT LETTER FOR GENERAL CONTROL ADOLESCENTS

FACTORS ASSOCIATED WITH ADOLESCENT COPING BEHAVIOURS

Thank you for agreeing to participate in this study of adolescent coping behaviours.

The purpose of this study is to determine how you and other adolescents cope with depression, stress, and other unhappy events in your lives. To do this we will be examining how adolescents try to deal with feelings of depression, hopelessness, and to determine if self harming thoughts or behaviours such as drug and/or alcohol use or suicidal thoughts are a common feature in times of stress. We also want to examine factors that protect adolescents from engaging in self harming behaviours.

All that you are required to do is to complete four questionnaires. This will take approximately 1/2 hour. These questionnaires have been used across North America, Britain, and Europe and cover such topics as problems solving, coping skills and depression, drug and alcohol use, attitudes towards suicide and perception of parental attitudes of adolescent drug and alcohol use.

You are assured that all of the information will remain completely confidential. You will not be required to put your name on any of the forms. You are also assured that although your parent (guardian) must also sign a consent form, they will not receive any information regarding the completed questionnaires.

Again thank you for participating in this study. We appreciate your help, as the answers that you and other young people provide will help us to better understand how adolescents feel at times of stress, how adolescents deal with stress, and what types of programs can be developed for those in need.

If you have any questions or concerns, please do not hesitate to call.

Ms. Kim Adria
435-2462

Dr. Maurice Blackman
Director, Child Psychiatry
University of Alberta Hospitals
492-6569

ADOLESCENT CONSENT:

I acknowledge that the research procedures described on the information sheet attached and of which I have a copy have been explained to me, and that any questions that I have asked have been answered to my satisfaction. In addition,, I know that I may contact the person designated on this form, if I have further questions either now or in the future. I understand that I am free to withdraw from the study at any time.

_____ _____

(name) (name of witness)

_____ _____

(signature) (signature of witness)

_____

(signature of investigator or designee)

The persons who may be contacted about the research are:

Ms. Kim Adria
436-2462

Dr. Maurice Blackman
Director, Child Psychiatry,
University of Alberta Hospitals
492-5659

APPENDIX X

CONSENT LETTER FOR PARENTS OF GENERAL CONTROL ADOLESCENTS

FACTORS ASSOCIATED WITH ADOLESCENT COPING BEHAVIOURS

I am engaged in a study of adolescence looking specifically at coping behaviours used by adolescents to deal with stress in their lives.

The purpose of this study is to determine how adolescents cope with depression, stress, and other unhappy events in their lives. To do this we will be examining how adolescents try to deal with feelings of depression, hopelessness, and to determine if self harming thoughts or behaviours such as drug and/or alcohol use or suicidal thoughts are a common feature in times of stress. We also want to examine factors that protect adolescents from engaging in self harming behaviours.

Your permission is required for your child's participation in this study. Your child will be required to complete four questionnaires. This will take approximately 1/2 hour. These questionnaires have been used across North America, Britain, and Europe and cover such topics as problems solving, coping skills and depression, drug and alcohol use, attitudes towards suicide and perception of parental attitudes of adolescent drug and alcohol use.

You can be assured that all of the information will remain completely <u>confidential</u>. Your child will not be required to put his/her name on any of the forms. You also understand that although you must also sign a consent form, you may not see the completed questionnaires.

Again thank you for participating in this study. We appreciate your child's help, as the answers that he/she and other young people provide will help us to better understand how adolescents feel at times of stress, how adolescents deal with stress, and what types of programs can be developed for those in need.

If you have any questions or concerns, please do not hesitate to call.

Ms. Kim Adria
435-2462

Dr. Maurice Blackman
Director, Child Psychiatry
University of Alberta Hospitals
492-6569

PARENTAL CONSENT:

I acknowledge that the research procedures described on the information sheet attached and of which I have a copy have been explained to me, and that any questions that I have asked have been answered to my satisfaction. In addition,, I know that I may contact the person designated on this form, if I have further questions either now or in the future. I understand that my child is free to withdraw from the study at any time.

_____ _____

(name) (name of witness)

_____ _____

(signature) (signature of witness)

_____

(signature of investigator or designee)

The persons who may be contacted about the research are:

Ms. Kim Adria
436-2462

Dr. Maurice Blackman
Director, Child Psychiatry,
University of Alberta Hospitals
492-5659

APPENDIX XI

SUPPLEMENTARY TABLES AND FIGURES

Table A1
Chi Square Results: Age by Group

		Suicidal	Psychiatric Controls	General Controls
12	n	2		1
	row%	66.7		33.3
	column%	10.0		4.8
13		2	1	3
		33.3	16.7	50.0
		10.0	6.0	14.3
14		8	9	9
		30.8	34.6	34.6
		40.0	45.0	42.9
15		4	6	4
		28.6	42.9	28.6
		20.0	30.0	19.0
16		4	2	3
		44.4	22.2	33.3
		20.0	10.0	14.3
17			2	1
			66.7	33.3
			10.0	4.8

Total = 61
x^2 = 6.35855 df = 2 p<0.7843

Table A2
Chi Square Results: Differences in Drug Use Between the Three Groups

		Suicidal	Psychiatric Controls	General Controls
No Drug Use	n	10	11	17
	row%	26.3	28.9	44.7
	column%	47.6	57.9	81.0
Drug Use		11	8	4
		47.8	34.8	17.4
		52.4	42.1	19.0

Total = 6
x^2 = 5.19449 df=2 p<.0745

Table A3
Summary Data from One-Way Analysis of Variance for Alcohol Dependence of the Three Groups

	Suicidal	Psychiatric Controls	General Controls
n	18	14	10
M	11.1111	7.0000	4.300
SD	9.3298	5.7912	5.7164

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	2	324.5270	162.2635	2.8636
Within Groups	39	2209.8778	56.6635	
Total	41	2534.4048		

Table A4
Summary Data from One-Way Analysis of Variance for Drug Abuse of the Three Groups

	Suicidal	Psychiatric Controls	General Controls
n	13	8	4
M	5.1538	6.2500	2.25
SD	6.2429	6.2500	.9574

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	2	43.0177	21.5088	.8021
Within Groups	24	589.9423	26.8156	
Total	24	632.9600		

Table A5
Chi Square Results: Differences Between Frequencies of Suicidal, Psychiatric and General Controls With Respect to Last Time Drugs were Used

		Time	
		Within the Last Month	Within the Last Month
Suicidal	n	5	7
	row%	41.7	58.3
	column%	50.0	50.0
Psychiatric Controls		4	4
		50.0	50.0
		40.0	28.6
General Controls		1	3
		25.0	75.0
		10.0	21.4

Total = 24
x^2 = 0.68571 df=2 p<.7097

Table A6
Chi Square Results: Differences Between Frequencies of Suicidal, Psychiatric and General Controls With Respect to Presence of Others, Last Time Drugs Were Used

		Alone	With Others
Suicidal	n	1	11
	row%	8.3	91.7
	column%	100.0	47.8
Psychiatric Controls			8
			100.0
			34.8
General Controls			4
			100.0
			17.4

Total = 24
x^2 = 1.04348 df=2 p<.5935

Table A7
Chi Square Results: Differences Between Frequencies of Suicidal, Psychiatric and General Controls With Respect to Affective Response to Drugs

		Affective Response	
		Positive	Negative
Suicidal	n	7	5
	row%	58.3	41.7
	column%	63.6	38.5
Psychiatric Controls		3	5
		37.5	62.5
		27.3	38.5
General Controls		1	3
		25.0	75.0
		9.1	23.1

Total = 11
x^2 = 1.67832 df=2 p<.4321

Table A8
Chi Square Results: Differences Between Frequencies of Suicidal, Psychiatric and General Controls With Respect to Time of Last Alcohol Consumption

		Time	
		Within the Last Month	Within the Last Month
Suicidal	n	8	8
	row%	50.0	50.0
	column%	38.1	42.1
Psychiatric Controls		7	7
		50.0	50.0
		33.3	36.8
General Controls		6	4
		60.0	40.0
		28.6	21.1

Total = 40
x^2 = .30075 df=2 p<.8604

Table A9
Chi Square Results: Differences Between Frequencies of Suicidal, Psychiatric and General Controls With Respect to Presence of Others, Last Time Alcohol Was Used

		Alone	With Others
Suicidal	n	1	15
	row%	6.3	93.8
	column%	33.3	40.5
Psychiatric Controls		1	13
		7.1	92.9
		33.3	35.1
General Controls		1	9
		10.0	90.0
		33.3	24.3

Total = 40
x^2 = 0.12870 df = 2 p<.9377

Table A10
Chi-Square Results: Differences Between Adolescent Perception of Alcohol Use by Parents of the Three Groups

	Suicidal		Psychiatric Controls		General Controls	
Alcohol Use by Fathers	No Use	Use	No Use	Use	No Use	Use
n	1	12	1	18	3	17
row%	7.7	92.3	5.3	94.7	15.0	85.0
column%	20.0	95.5	20.0	38.3	60.0	36.2

Total = 52
x^2 = 1.13666 df=2 p<.5665

Alcohol Use by Mothers	No Use	Use	No Use	Use	No Use	Use
n	4	14	3	3	15	16
row%	22.2	77.8	16.7	16.7	83.3	76.2
column%	33.3	31.1	25.0	25.0	33.3	35.6

Total = 57
x^2 = 0.31918 df=2 p<.8525

Table A11
Chi-Square Results: Differences Between Adolescent Perception of Drug Use by Parents of the Three Groups

	Suicidal		Psychiatric Controls		General Controls	
Drug Use by Fathers	No Use	Use	No Use	Use	No Use	Use
n	11	3	13	2	17	3
row%	78.6	21.4	86.7	13.3	85.0	15.0
column%	26.8	37.5	31.7	25.0	41.5	37.5

Total = 49
x^2 = 0.39090 df=2 p<.8225

	Suicidal		Psychiatric Controls		General Controls	
Drug Use by Mothers	No Use	Use	No Use	Use	No Use	Use
n	13	3	16	2	18	1
row%	81.3	18.8	88.9	11.1	94.7	5.3
column%	27.7	50.0	34.0	33.3	38.3	16.7

Total = 53
x^2 = 1.57492 df=2 p<.4550

Table A12
Chi-Square Results: Differences Between Adolescent Perception of Parental Values of Alcohol Use by Males and Females for all Three Groups

		Parental Values For Females			Parental Values For Males		
		disapprove	approve	don't care	disapprove	approve	don't care
Suicidal	n	12	1	4	10	1	2
	row%	70.6	5.9	23.5	76.9	7.7	15.4
	column%	25.0	50.0	80.0	23.8	50.0	50.0
Psychiatric Controls		15	1	1	14	1	1
		88.2	5.9	5.9	87.5	6.3	6.3
		31.3	50.0	50.0	33.3	50.0	25.0
General Controls		21			18		1
		100.0			85.7		4.8
		43.8			42.9		25.0

For Females n=55, df=4, x^2 = 8.16912, p<.0856
For Males n=50, df=4, x^2 = 5.57831, p<.4720

Table A13
Chi-Square Results: Difference Between Adolescent Perception of Parental Values of Drug Use by Males and Females for all Three Groups

		Parental Values For Females			Parental Values For Males		
		disapprove	approve	don't care	disapprove	approve	don't care
Suicidal	n	16	1	1	15	1	1
	row%	88.9	5.6	5.6	88.2	5.9	5.9
	column%	29.1	100.0	100.0	28.8	100.0	50.0
Psychiatric Controls		18	0	0	18	0	0
		100.0			100.0		
		32.7			34.6		
General Controls		21	0	0	19	0	1
		100.0			90.5		4.8
		38.2			36.5		50.0

For Females n=57, df=4, x^2 = 4.49091, p<.3436
For Males n=56, df=4, x^2 = 5.09201, p<.5321

Table A14
Chi Square Results: Differences Between Adolescent Alcohol Use and Perceived Parental Values of Adolescent Alcohol Use: For The Suicidal Group

		Parental Values		
		Disapprove	Don't Care	Approve
<u>For Males</u>				
No Adolescent Alcohol Use	n	3		
	row%	100.0		
	column%	30.0		
Adolescent Alcohol Use		7	2	1
		70.0	20.0	10.0
		70.0	100.0	100.0
n=13				
x^2 = 1.17 df=2 p<.5571				
<u>For Females</u>				
No Adolescent Alcohol Use	n	3		
	row%	100.0		
	column%	25.0		
Adolescent Alcohol Use		9	4	1
		64.3	28.6	7.1
		75.0	100.0	100.0
n=17				
x^2 = 1.151786 df=2 p<.4682				

Table A15
Chi Square Results: Differences Between Adolescent Alcohol Use and Perceived Parental Values of Adolescent Alcohol Use: For The Psychiatric Group

		Parental Values		
		Disapprove	Don't Care	Approve
<u>For Males</u>				
No Adolescent Alcohol Use	n	4		
	row%	100.0		
	column%	28.6		
Adolescent Alcohol Use		10	1	1
		83.3	8.3	8.3
		71.4	100.0	100.0
n=16				
x^2 = .76190	df=2	p<.6832		
<u>For Females</u>				
No Adolescent Alcohol Use	n	4		
	row%	100.0		
	column%	26.7		
Adolescent Alcohol Use		11	1	1
		84.6	7.7	7.7
		73.3	100.0	100.0
n=17				
x^2 = .69744	df=2	p<.7056		

Table A16
Chi Square Results: Differences Between Adolescent Alcohol Use and Perceived Parental Values of Adolescent Alcohol Use: For The General Control Group

		Parental Values		
		Disapprove	Don't Care	Approve
For Males				
No Adolescent Alcohol Use	n	11		
	row%	100.0		
	column%	61.1		
Adolescent Alcohol Use		7	2	1
		70.0	20.0	10.0
		38.9	100.0	100.0
n=21				
x^2 = .3.85	df=2	p<.2781		
For Females				
No Adolescent Alcohol Use	n	11		
	row%	100.0		
	column%	55.0		
Adolescent Alcohol Use		9		1
		90.0		10.0
		45.0		100.0
n=21				
x^2 = .00239	df=2	p<.9610		

Table A17
Chi-Square Results: Differences Between Adolescent Drug Use and Perceived Parental Usage of Drugs: All Three Groups

		Suicidal		Psychiatric Controls		General Controls	
Adolescent Drug Use and Perceived Use by Fathers		Father's Use					
		No Use	Use	No Use	Use	No Use	Use
No Adolescent Drug Use	n	6	0	9	0	0	0
	row%	100.0		100.0			
	column%	54.5		69.2			
Adolescent Drug Use		5	3	4	2	0	0
		62.5	37.5	66.7	33.3		
		42.5	100.0	30.8	100.0		

Suicidal
n=14, Fisher's Exact, one-tailed p=.15385
Psychiatric Control
n=15, Fisher's Exact, one-tailed p=.14286

Drug Use by Mothers	No Use	Use	No Use	Use	No Use	Use
	6	2	11	0	16	0
	75.0	25.0	100.0		100.0	
	46.2	66.7	68.8		88.9	
	7	1	5	2	2	1
	87.5	12.5	71.4	28.6	66.7	33.3
	53.8	33.3	31.3	100.0	11.1	100.0

Suicidal
n=16, Fisher's Exact, one-tailed, p=.500
Psychiatric Control
n=15, Fisher's Exact, one-tailed, p=.14286
General Control
n=19, Fisher's Exact, one-tailed, p=.15789

Table A18
Chi Square Results: Differences Between Adolescent Drug Use and Perceived Parental Values of Adolescent Drug Use: Suicidal Group

		Parental Values For Males			Parental Values For Females		
		disapprove	approve	don't care	disapprove	approve	don't care
No Adolescent Drug Use	n	8	0	0	8	0	0
	row%	100.0			100.0		
	column%	53.3			50.0		
Adolescent Drug Use		7	1	1	8	1	1
		77.8	11.1	11.1	11.1	10.0	10.0
		46.7	100.0	100.0	100.0	100.0	100.0

For Males n=17, df=2, x^2=2.01481, p<.3652
For Females n=18, df=2, x^2=1.8, p<.4066

Table A19
Pearson Product Moment Correlations Between Alcohol Dependence Scale Scores, Drug Abuse, Scale Scores, Depression Probability Scores: Suicidal and Psychiatric Groups

	Suicidal			Psychiatric Controls		
Alcohol Dependence Scale						
	CDI	SPS	DRUG	CDI	SPS	DRUG
	.0535	.1176	.6844	.2358	.2795	-.0096
	p=.416	p=.327	p=.01	p=.199	p.156	p=.397
	n=18		n=10	n=14	n=14	n=8
Drug Abuse Scale						
	CDI	SPS	DRUG	CDI	SPS	DRUG
	-.4647	.4939		.4167	.4784	
	p=.075	p=.061		p=.152	p.115	
	n=11	n=11		n=8	n=8	
		.1280				
		p=.306				
		n=18				

Table A20
Pearson Product Moment Correlations Between Alcohol Dependence Scale Scores, Drug Abuse, Scale Scores, Depression Probability Scores: General Control Group

	General Control Group		
Alcohol Dependence Scale	CDI	SPS	DRUG
	.3175 p=.186 n=10		.8700 p=.065 n=4
Drug Abuse Scale	CDI	SPS	DRUG
	-.4647 p=.075 n=11	.4939 p=.061 n=11	

Table A21
Summary Data from One-Way Analysis of Variance for Alcohol Use and Depression Scores for The Suicidal Group

	No Use	Use
n	3	18
M	22.6667	22.6667
S	4.0415	12.0879

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	1	.0000	.0000	.0000
Within Groups	19	2516.6667	132.4561	
Total	20	2516.6667		

Table A22
Summary Data from One-Way Analysis of Variance for Drug Use and Depression Scores for The Suicidal Group

	No Use	Use
n	10	11
M	26.0000	19.6364
SD	11.4407	10.6139

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	1	212.1212	212.1212	1.7488
Within Groups	19	2304.5455	121.2919	
Total	20	2516.6667		

Table A23
Summary Data from One-Way Analysis of Variance for Drug Use and Suicide Probability Scores for The Suicidal Group

	No Use	Use
n	10	11
M	93.6000	27.5931
SD	79.3636	16.5606

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	1	1061.6260	1061.6260	2.1022
Within Groups	19	9594.9455	504.9971	
Total	20	10656.5714		

Table A24
Summary Data from One-Way Analysis of Variance for Alcohol Use and Depression Scores for The Psychiatric Group

	No Use	Use
n	5	14
M	19.000	13.3571
SD	7.7136	7.3234

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	1	117.3120	117.3120	2.1325
Within Groups	17	935.2143	55.0126	
Total	18	1052.5263		

Table A25
Summary Data from One-Way Analysis of Variance for Alcohol Use and Suicide Probability Scores for The General Control Group

	No Use	Use
n	11	10
M	41.0000	52.5000
SD	6.5115	19.3233

Source	D.F.	Sum of Squares	Mean Square	F
Between Groups	1	692.7381	692.7381	3.4779
Within Groups	19	3784.5000	199.1842	
Total	20	4477.2381		

Figure 2

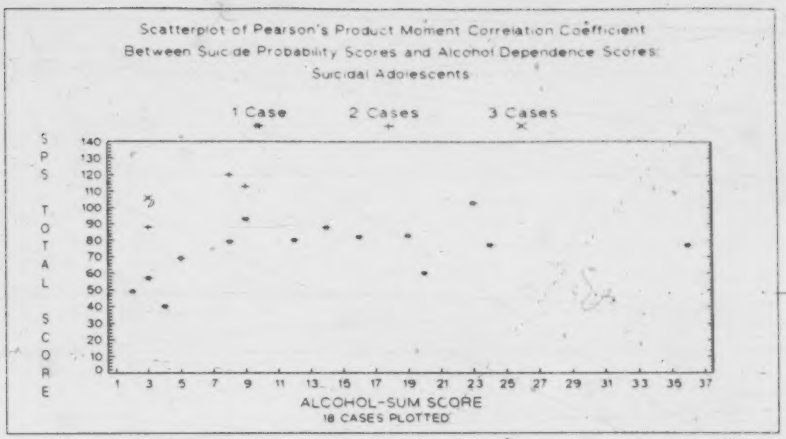
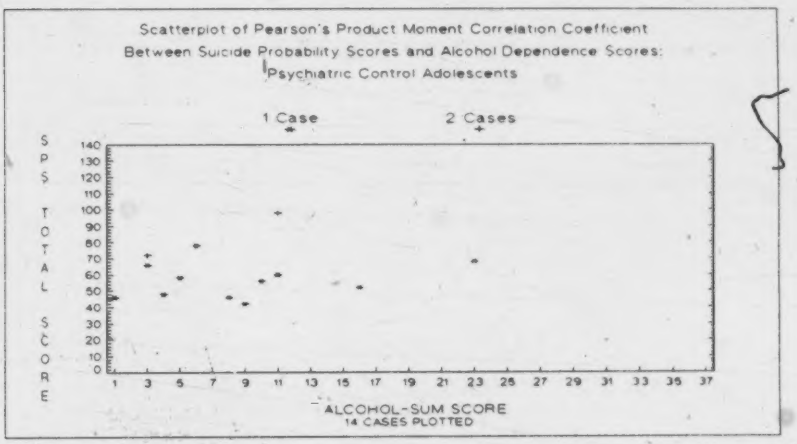


Figure 3



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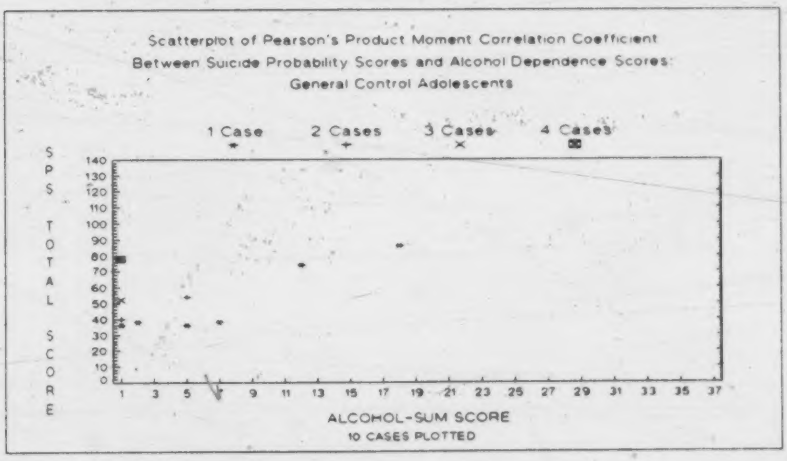

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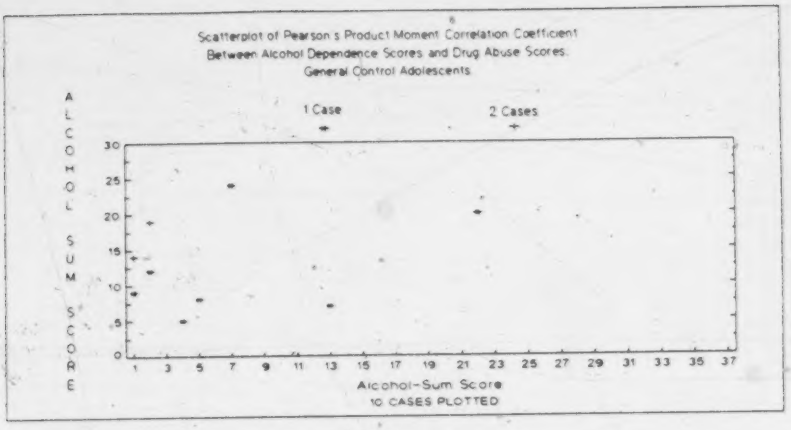

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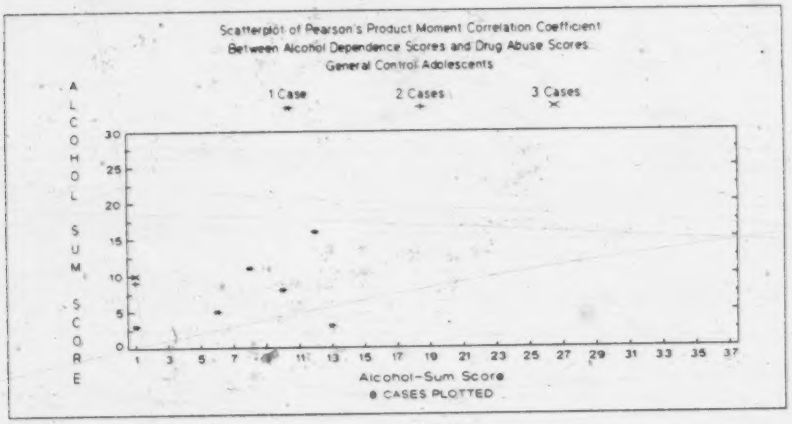

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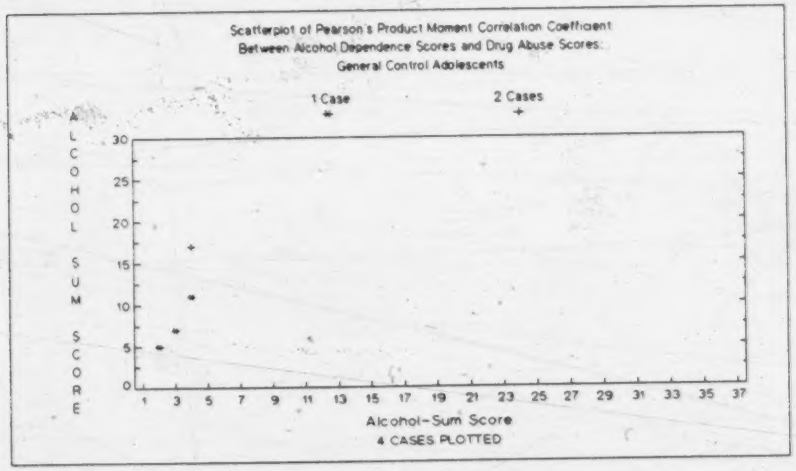

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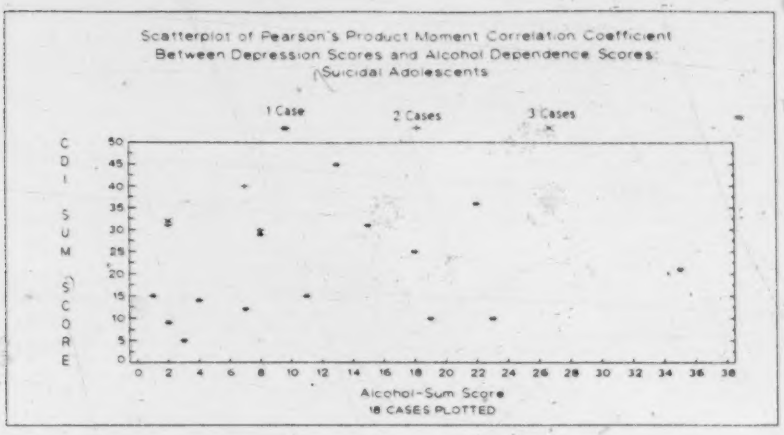

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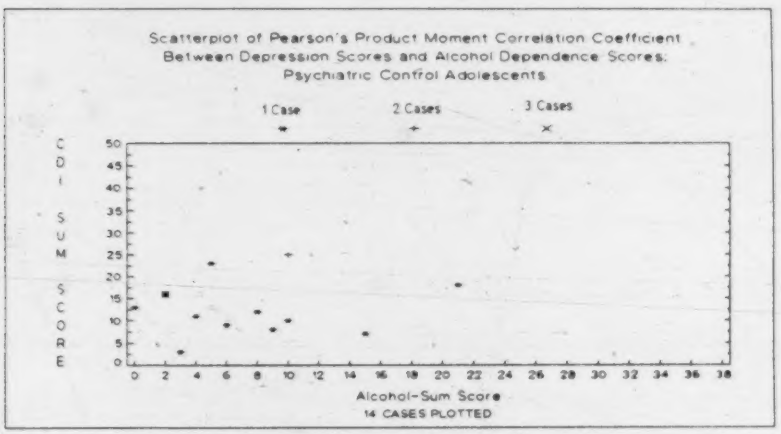

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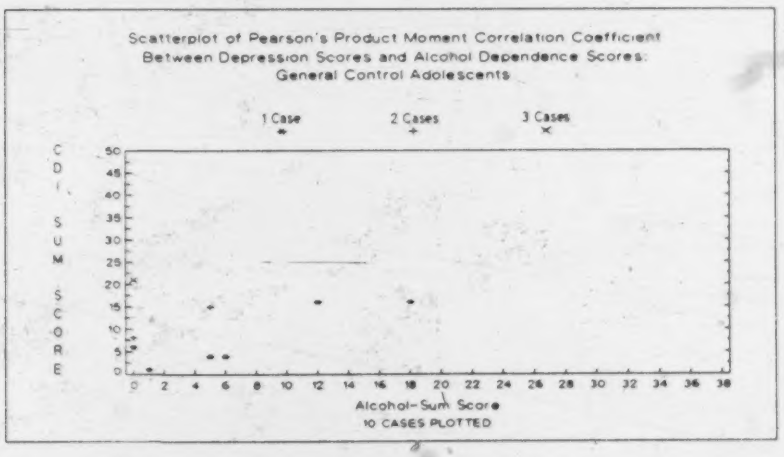

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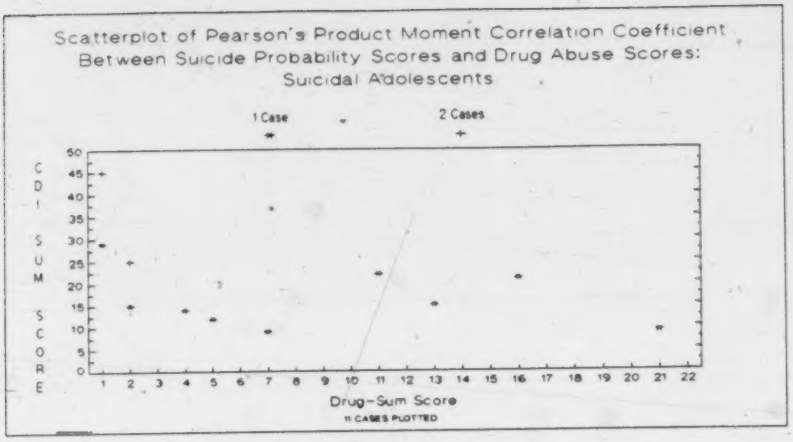

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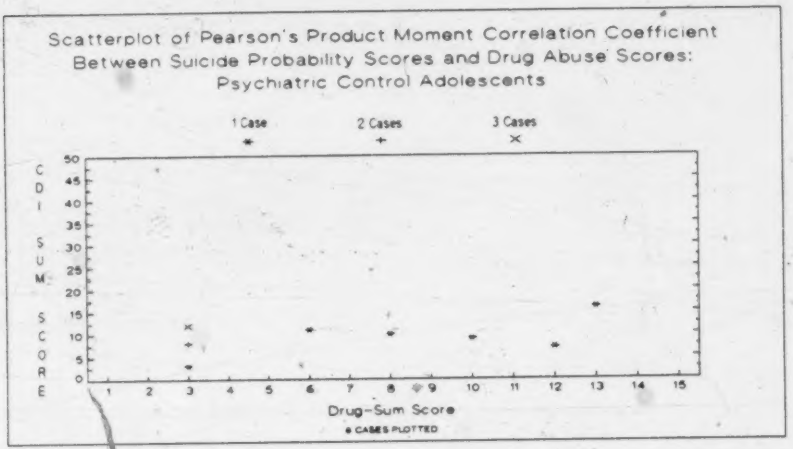
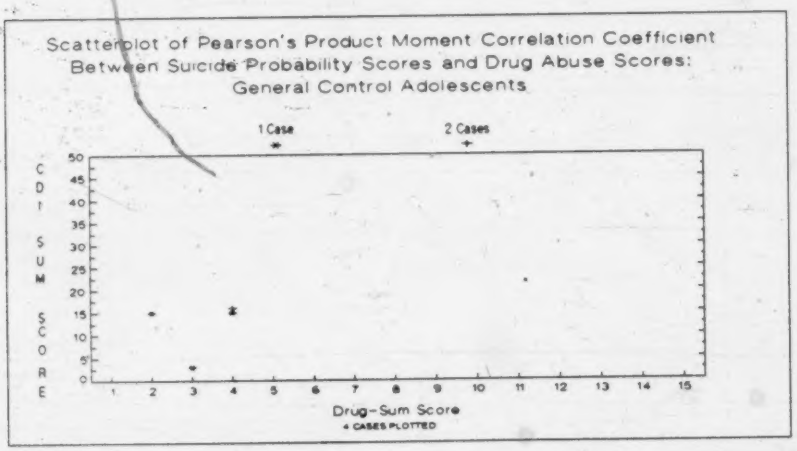


Figure 13



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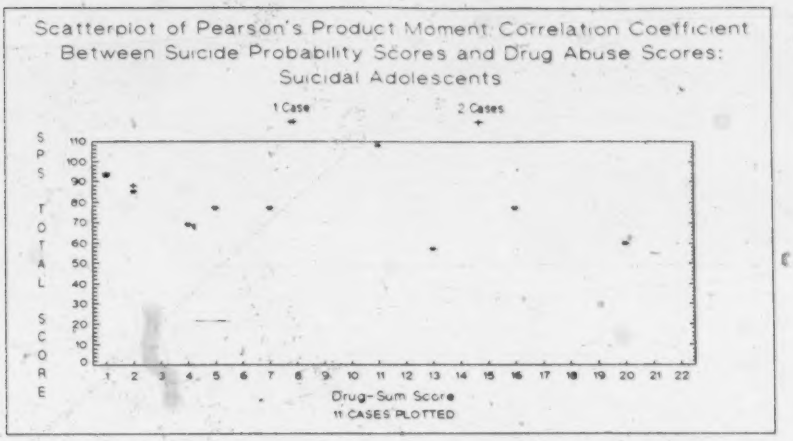

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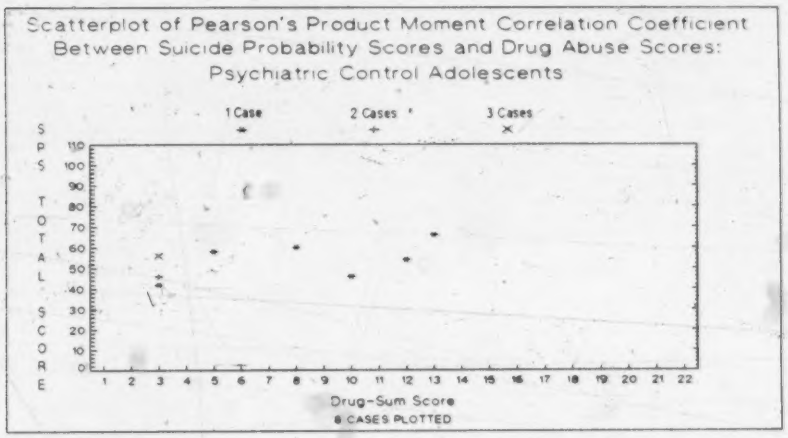


Figure 16

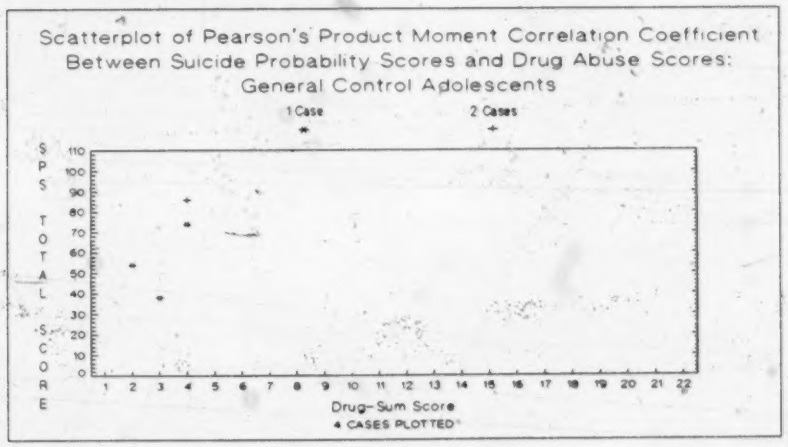
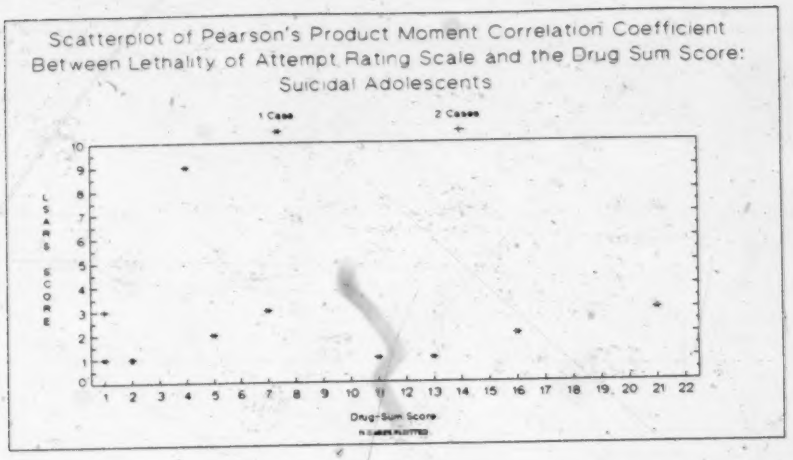


Figure 17


Scatterplot of Pearson's Product Moment Correlation Coefficient
Between Lethality of Attempt Rating Scale and the Drug Sum Score:
Suicidal Adolescents
1 Case
2 Cases
LSARS SCORE
Drug-Sum Score

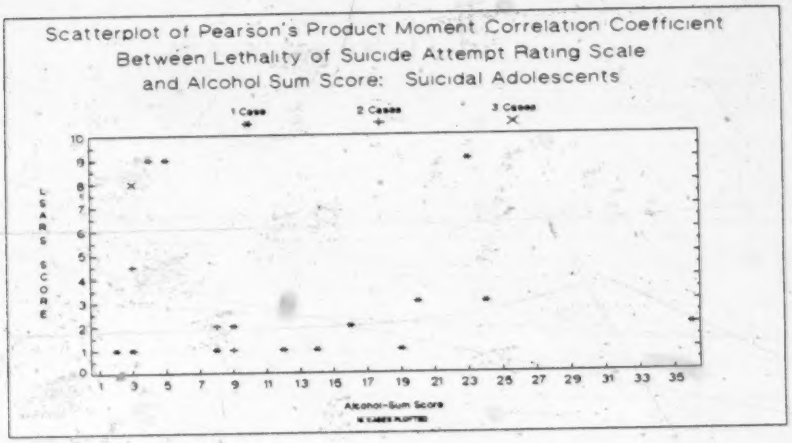



Figure 18